THINK, TALK, READ AND WRITE BETTER ENGLISH: IMPROVING L2 LITERACY SKILLS OF MALAYSIAN SCHOOLCHILDREN THROUGH COLLABORATIVE REASONING

BY

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Abstract

This quasi-experiment study reports on the improvement in oral and written skills of Malaysian schoolchildren who generally struggle in English literacy attainment and have very limited opportunities for extended talk in the language, which is their L2. In this study, 430 Form 2 (8^{th} grade) Malaysian students from twelve classrooms from three public secondary schools in a semi-urban area in Selangor, Malaysia were randomly assigned to either participate in Collaborative Reasoning (CR) sessions, an intellectually stimulating, collaborative and productive approach to classroom talk, or to serve as a waitlist control group, receiving CR after the project ended. Students in the CR group participated in twice a week, small-group discussion sessions after reading stories with unpredictable endings, with each session lasting between 20 – 30 minutes. The CR discussions are intended to create a forum for students to listen to one another think out loud as they learn to engage in higher order thinking skills in the second language through reasoned argumentation. Students use their personal experiences and evidence from the texts to support their conclusions and consider each other's points of view. Prior to the intervention, all students were assessed on reading fluency to determine initial L2 proficiency status (IRF), a Need for Cognition test modified for children to determine students' degree of tendency to engage in thinking activities (NFC), and a self-report questionnaire to survey students' initial interests in L2 talk (IIT) and literacy activities in the L2 (IILA). After a 6-week intervention, students were assessed on a second reading fluency test, oral and written language production, transfer of argumentative reasoning skills, and interest in group discussions in the L2. The CR group made significant and substantial gains on measures of reading fluency, oral language production, and written language production in their second language. Results showed

that experiencing CR accelerated Malaysian students' rate of talk and both oral and written output, and improved performance in terms of syntactical complexity and vocabulary diversity. Students also showed significant gains in argumentation and reasoning in English. In both the oral and writing tasks, students produced higher number of reasons. CR students were also more likely to produce spontaneous counterarguments and rebuttals. CR enhanced students' overall interest in L2 discussion and they perceived that having experienced Collaborative Reasoning discussions made them think, read, and write better in English. Taken together, the results of this study entail significant implications for the English literacy instruction of Malaysian children.

To the children of Malaysia

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

In our increasingly interconnected and globalized world, the importance of learning to communicate in English can never go overstated. Being proficient in English provides a myriad of life opportunities. Given its status as a global lingua franca, the commitment and efforts put into English education are some of the most fundamental investments a developing country like Malaysia can make towards securing the future in order to access the wealth of data available and achieve a reasonable measure of success and stature in trade and industry.

Despite the history of English being a legacy of more than a century's worth of British colonial rule in the country, Malaysia has been suffering from a sharp decline in English language proficiency over the past several decades, largely due to the inconsistencies in the country's education policies. There is a steady pattern of dissatisfaction among students, educators, policy makers and the public at large regarding the teaching and learning of the language (Abdul Rahman, 2005, Ismail, 2008) and there is a general consensus in the current literature that Malaysian students do not seem to be able to attain reasonable English literacy skills even after going through 11 years of learning English in school (Kaur, 2006; Jalaludin, Mat Awal & Abu Bakar, 2008).

As the colonial era ended in 1957, the nation subsequently experienced a major backwash effect when in the 1970s, Bahasa Malaysia replaced English as a medium of instruction in schools and other government organizations as it was necessary at the time, being a fledgling multiracial and multicultural nation, to establish an official language to manifest and reinforce its sovereignty. According to advocates of English-mediated learning, this change however, has

created a “lost generation” of young adults whose command of the English language were weaker than the previous generations. The sharp decline provoked a radical step in the early 2000s to improve the nation’s overall standard of English proficiency by shifting the medium of instruction for the subjects of science and mathematics back to English. The rationale behind this rather controversial but potentially effective method was that students will learn English while gaining content knowledge in mathematics and science, thus providing a greater exposure to English as a language as compared to merely learning it as one subject with limited class time.

However, in 2009 the Education Ministry suddenly announced the withdrawal of this policy and have once again reversed back to the full use of Bahasa Malaysia in schools as international assessments at the time i.e. Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) suggested that Malaysian student performance was declining in absolute terms and a general conclusion was made that the students were deemed unprepared to learn mathematical and scientific content knowledge in English due to an overall critical lack of proficiency in the second language (L2).

Over the past two decades, the PISA and TIMMS international assessments have emerged as a means of directly comparing the quality of educational outcomes across different school and educational systems. They assess a variety of cognitive skills such as application and reasoning. When Malaysia first participated in TIMSS in 1999, its average student score was higher than the international average in both mathematics and science. By 2007, the Malaysian Education system’s performance had slipped to below the international average in both subjects with a corresponding drop in ranking. Critically, 18% and 20% of Malaysia’s students failed to meet the minimum proficiency levels in mathematics and science in 2007, a two to fourfold increase from 7% and 5% respectively in 2003 (Ministry of Education Malaysia, 2012). These

students were identified as possessing only limited mastery of basic mathematical and scientific concepts. The results from 2009 PISA (the first time Malaysia participated in this assessment) were also discouraging, with Malaysia ranking in the bottom third of 74 participating countries, below the international and OECD[1] average (Ministry of Education Malaysia, 2012). Almost 60% of the 15-year-old Malaysian students who participated in PISA failed to meet the minimum proficiency level in mathematics, while 44% and 43% did not meet the minimum proficiency levels in reading and science respectively. A difference of 38 points on the PISA scale is equivalent to one year of schooling. A comparison of scores shows that 15-year-olds in Singapore, South Korea, Hong Kong, and Shanghai are performing as though they have had 3 or more years of schooling than 15-year-olds in Malaysia. All these eventually resulted in a new act being endorsed called *To Uphold Bahasa Malaysia, To Strengthen the English Language* (*MBMMBI*, 2010).

The replacement of English-mediated instruction with Bahasa Malaysia demonstrates that the nation's general proficiency in English was very low or limited. Only 25% of the teachers who taught the mathematics and science subjects had decent command of English, and much fewer of the teachers used English fully in the teaching of these two subjects. On average, due to limited oral proficiency and inadequate attainment of English literacy skills, mathematics and science teachers used English only between 53% and 56% of the entire time allocated for the teaching of mathematics and science (Ministry of Education Malaysia, 2010).

The official government report also stated that the achievement gap between schools in the urban and rural areas were found to be experiencing greater difficulties in understanding English. Despite of this policy shift, English continued to be a revered language in the country

[1] Organization for Economic Co-operation and Development; the international body responsible for conducting the PISA assessments.

and remained as the official medium of instruction at tertiary level institutions. This only caused further confusion and aggravates the comprehension disparities experienced by Malaysian undergraduate students in content knowledge, as they were not previously taught via English medium in schools. Correspondingly, poor oral and communicative English proficiency among fresh graduates has, since 2006, been consistently ranked as one of the top five issues facing Malaysian employers.

Regardless of the policy change, Malaysia continued to witness significant deterioration of overall academic performance in the global arena based on the latest published cycle of the 2012 PISA study (2014). Ranked 52nd out of 65 participating countries, Malaysia performed significantly lower than the OECD average scores in all the three main subject areas evaluated: mathematics, reading, and science. In fact, annualized change in score points for 2012 were negative for reading and science suggesting a drop in performance compared to the previous PISA assessment carried out in 2009. At the same time, the importance of English mastery and the critical lack thereof cannot be sidelined. The urgent need for a major education transformation ultimately led to the birth of the Malaysian Education Blueprint 2013-2025 (2012), a result of a multitude of analyses, interviews, surveys, and research conducted with support of national and international education experts, officials, teachers, principals, and parents all across Malaysia. The Education Blueprint outlined strategies and initiatives for the enhancement of the National Education System. Among others, it highlights the immediate and critical need for an effective remedy in English language teaching and learning in Malaysian schools. It specifically calls for an improved bilingual proficiency – that every Malaysian child will be, at minimum, operationally proficient in Bahasa Malaysia as the national language and language of unity, but more crucially, to also be competent in English as the international

language of communication so that upon leaving school, students should be able to work in both Bahasa Malaysia and English language environment. Also highlighted in the Education Blueprint is the extension of the LINUS[2] screening test to include English literacy attainment. Previously, all Grades 1-3 students were only screened consistently for timely attainment of Bahasa Malaysia literacy skills. Above all, it calls for "greater exposure to the (English) language" as more experiences of spoken English is required for students to achieve operational oral proficiency than the current exposure rate of only 15-20% of the daily school time (Ministry of Education Malaysia, 2012). One such move to address this need for a complete and replicable school transformation program is the establishment of Trust Schools – currently still in its pilot stages – through a Public-Private-Partnership between the Education Ministry and Yayasan Amir, a not-for-profit foundation, which among others, aims at improving the quality of teaching and learning by employing new, feasible pedagogies that would engage students to collaborate with each other across lessons (Yayasan Amir Progress Report, 2013).

The overall goal of this dissertation study therefore is to provide one such alternative pedagogical approach that embraces collaborative-based learning to address the issue of limited levels of English proficiency among Malaysian schoolchildren particularly in terms of the poor oral proficiency and low L2 literacy skills attainment. More importantly, the intervention program implemented in this study sought to provide an effective means for students to practice the target L2 through engagement in meaningful and purposeful dialogic interactions. In the literature review that follows, I first investigate the issues and challenges as to why the teaching and learning of English in Malaysia have consistently fail to meet its intended learning outcomes. In the second section, I review the concept of dialogic interaction and the possible role

[2] LINUS is a three times per school year screening test that assess every student in Grades 1 – 3 which first began in 2010 to determine whether or not students are progressing in language (Bahasa Malaysia) and numeracy at an expected pace.

it plays in the development of language and literacy skills of L2 learners, especially in terms of oral and communicative ability in the second language. Several empirical studies to support this view will be discussed. The theoretical underpinnings will also be explored. In the third section of this chapter, to address the inadequacy of the literacy instruction for Malaysian English language learners, I propose an alternative approach to classroom discussion, Collaborative Reasoning, to enhance Malaysian schoolchildren's oral and written English development.

Explaining the poor English literacy skills attainment among Malaysian schoolchildren

In a study examining reading comprehension problems of 200 Form 2 (8^{th} grade) Malaysian students attending public secondary schools in a southern state of the country, Rajentharan and Singh (2004) found that rural Malaysian students generally use very little English to read and to communicate as the use of their L1 is predominant. English is seen as a foreign rather than its actual status as Malaysia's second language, and deemed unimportant. The study also found that rural Malaysian students lack the knowledge of employing appropriate reading strategies required to master or improve the English language e.g. predicting, discussing, reflecting, and comparing, which in turn led to the overall low achievement in reading comprehension.

Correspondingly, Nambiar, Ibrahim and Pramela (2008) found 10^{th} grade Malaysian students' English language learning strategies to be underdeveloped and underutilized and the poor learning strategies could account for students' weaknesses in reading and comprehending English text. The students in the study also reported a tendency to use strategies that do not require them to be analytical and critical. In fact, 68.2 % of the study's participants reported that they rarely or never use contextual or background knowledge to guess meaning of words and

that they are highly dependent on Bahasa Malaysia as L1 to help them comprehend an English text.

In terms of written language production, consistent with the findings of previous studies, an error analysis study of 72 English essays written by 10th grade Malaysian students in a semi-urban school shows that students generally have problems applying correct grammatical rules in their writings (Darus & Kaladevi, 2009). Wrong application of verb tense, inappropriate word choice and prepositions were the common mistakes produced by the students which further implies that Malaysian students have not yet mastered basic grammatical structures of English even after 10 years of formal schooling. Another commonly accepted observation is the lack of regular L2 reading practice among Malaysian learners which in turn will affect their L2 reading proficiency and therefore adding to the difficulties to write in the L2. Most Malaysian students do not read for pleasure, but rather, to pass examinations (Mustaffa, 2007). A large number of Malaysian students also do not read English materials on their own unless when told by their English teachers (Guthrie, 2005). This general lack of motivated and skilled reading practices would mean that these students are depriving themselves of language-rich experiences that would have otherwise expose them to examples of well-structured and grammatically accurate prose with a wide lexical variety typically gained from engaging in reading activities.

The worst performance is on oral English proficiency. Its importance can be reflected by the grouses that Malaysians have of the skill in question. One of the grouses was carried by a local news portal (The Malaysian Insider, June 2014) which reads, “Job seekers with A in SPM English but can’t speak a word of it”. Another earlier newspaper report (The Sun, July 2012, p. 8 in Abd. Manan & Shamsudin, 2012) reads, “Dissatisfaction with the level of spoken English in Malaysia has come to a boil, and every day a newspaper headline spotlights another aspect of the

problem" which demonstrates further the immediate need for a remedy. To my knowledge however, there have been none but one empirical study that have examined actual student performance in English language speech production (Abd. Manan & Shamsudin, 2012). The study found that Chinese Malaysian students, as compared to the Malays, performed better in terms of language productivity, vocabulary range and sophistication. Related studies have shown that Indian Malaysians seem to have a higher self-efficacy in terms of spoken English in comparison to the Chinese and Malays (Hairuzila & Rohani, 2008; Rahil, Habibah, Loh, Muhd, Nooreen & Abdullah, 2006), which further adds to the conclusion that the Malays – which make up the largest ethnic group of the country (60.3% as of 2010) – had poorer command of the language compared to other Malaysian ethnicities.

On a different note, reviewing empirical ESL studies in the Malaysian context discloses a prevailing strand in Malaysian schools in which the discourse of privileging examination (Koo, 2008) is still dominant across the education site. Regardless the Malaysian policy on English education that envisages employment of the communicative approach in the current English Language Teaching (ELT) curriculum, empirical studies reveal that strong emphasis is still given on the teaching of reading and writing skills and the mastering of grammatical rules which will be tested in the school examinations as well as in the national examinations (Abdul Rahman, 2005; Ali, 2008; Ambigapathy, 2002 in Che Musa, Koo, & Azman, 2012).

A systematic review of research studies conducted to examine English language learning in Malaysian schools found two important issues (Che Musa, Koo, & Azman, 2012). The Malay language for one, has a strong influence over the learning of English as Malaysian students' L2. Interference of the first language (L1) system in some ways contributes to wrong use of English grammatical rules, morphology and syntax. When writing in English, Malaysian learners tend to

refer to their L1 language system, use direct translation from L1 to L2, and depend on dictionary meanings to understand L2 text (Ambigapathy, 2002; Nambiar 2007). Second, instead of teaching English from the perspective of social practice, a strong emphasis is given on the teaching of reading and writing skills and the mastering of grammatical rules (Che Musa, Koo & Azman, 2012). Instead of making connections to how English is used in real communicative events, the teaching and learning of the language is seen rather as learning a subject, focusing solely on the mechanics of the language (Abdul Aziz, 2007; Ali, 2008; Hassan & Selamat, 2002; Ismail, 2008). Though some of the grammatical rules are presented in a dialog form during classroom instruction, these dialogs are mainly used to practice the language functions taught in the lesson rather than for authentic, communicative purposes (Abdul Rahman, 2005; Abu Hasan, 2008). Furthermore, apart from the linguistics obstacles, Jalaludin et. al (2008) found that the social surroundings – unenthusiastic attitude, lack of interest towards learning the language and the environment that do not encourage students to use the language – have diminished student's effort of acquiring the language suggesting further that the current common classroom practices neglects socio-cultural elements of language learning. English language learning in Malaysian classrooms is generally presented as learning a set of language mechanics with 'fixed' ways of using the language – presented as a neutral set of language systems to be learned and mastered for specific classroom situations – and isolated from its communicative use. Framed in this paradigm, arguably, learning English literacy will continually and persistently be regarded as an alien language to the students' communicative discourse.

Several studies have attempted to identify the possible factors that result in low English literacy attainment among Malaysian students. Table 1, obtained from Che Musa, Koo and Azman (2012) presents a summary of the factors. Though these causes cannot be generalized to

all students, it does represent a majority of the learners. The overall picture, as Che Musa, Koo and Azman (2012) asserts, is discouraging and is indicative of the need to change the ways in which English language literacy is taught to Malaysian schoolchildren.

Challenges in teaching English in Malaysia

In Malaysia, one of the biggest issues in developing a comprehensive English literacy curriculum rest upon the relevancy of such approach to the nation's current literacy needs. It is argued that contemporary literacy pedagogy should view learners as the co-authors and co-producers of knowledge instead of just passive recipients (Koo, 2008). A similar notion was suggested by Wenger (1998), who asserted that learning nowadays should comprise of active participation in communities of practice which in turn makes the process meaningful and emergent. Therefore, literacy is not limited to learning, rather its scope extends to promoting new insight and allowing opportunities of continuity and discontinuity. Specifically, literacy acquisition occurs as learners actively involved in meaningful learning (Che Musa, Koo & Azman, 2012).

The existing approach to literacy education which only highlights the importance of being literate will eventually put learners in an unfavorable situation (Kaur, 2006). Within this paradigm, learners' performance are measured based on test scores that inadvertently dampens their ability to apply language acquisition in meaningful conversations. These learners then face a serious conflict in literacy practice as they transition into tertiary education and beyond since the expectations are more applied and situational (Koo, 2008) rather than test-based. In her commentary, Koo (2008) argues that "as long as literacy continues to be viewed in terms of narrow utilitarian, decontextualized skills-based discourses..., Malaysian learners will find

themselves seriously disadvantaged" in today's global space (p. 31). Therefore, modern literacy approach should encompass the ability to encourage critical thinking, usher innovative thinking, and adequately address diversity. One such example is dialogic-based interaction, where it has been shown to play a significant role in developing these higher-order skills in L2 learning. I will now turn to discuss the subject area in the next section.

Dialogic interaction in the development of L2 students' literacy skills

The study of dialogic interaction in teaching and learning is not new (Bakhtin, 1981; Bruner, 1986; Cazden, 2001; Chapin, O'Connor & Anderson, 2009; Dewey, 1963; Fairclough, 2003; Goldenberg, 1991; Mercer, 1995; Nichols, 2006; Rogoff, 1990; Spiegel, 2005; Schleppegrell, 2004; Tharp & Gallimore, 1991; Vygotsky, 1978, 1986). Extensive research and fieldwork has also been done to establish the power of interaction through conversations in different dimensions of academic and personal development: language and literacy (e.g. Bakhtin, 1986; Hernandez, 2003; Ketch, 2005; Krashen, 1985; Long, 1983; Nystrand, 1996; Roskos, Tabors, & Lenhart, 2009; Swain, 1995), thinking skills (e.g. Brookfield & Preskilll, 2005; Mercer, 1995; Reznitskaya, Anderson, & Kuo, 2007, Ybarra et. al, 2008), content learning (e.g. Alvermann, Dillon, & O'Brien, 1987; Calkins, 2001; Lowry, 2006; Mercer, 1995), as well as social (e.g. Almasi et al., 2004; Cummins, 1994; Heath, 1983; Mercer & Littleton, 2007; Zwiers & Crawford, 2009; and psychological gains (e.g. Freire, 1970; Routman, 2000; Taylor, 2003; Vygotsky, 1986; Zwiers & Crawford, 2011).

Recent advancements have been made in the Second Language Acquisition (SLA) research as well as L2 pedagogy in the area of interaction, with sociocultural theory based on several of Vygotsky's key constructs providing new perspectives on the processes that are

ignited when learners are engaged in interactive, dialogic-based learning. According to Vygotsky (1978), higher cognitive abilities such as voluntary memory, attention, problem-solving and rational thought, are mediated through social interaction with an 'expert' through collaborative use of semiotic tools, the most important of which is language, and subsequently internalized by the learner. The dynamic process of development that takes place in this interaction is described as microgenesis and these changes over time reflect the learning processes which can be observed in other social processes (Hawkes, 2012).

Previously, the theory that underlies much of the interaction-based research defends a cognitivist point of view that learner-learner interaction is important because it increases their opportunities to receive comprehensible input (Krashen, 1982) and pushes them into the production of language which should be re-processed if it is not clear enough to the interlocutor (pushed output; Swain, 1985). This in turn helps learners process the language within their mental "black box", thus explaining SLA acquisition as merely an intramental process. However, Hawkes (2012) argues that most of the time, with their lens focused solely on moments of communication failure and learner errors, interaction studies within the cognitive paradigm run the risk of capturing only partially the value of dialogic interaction for L2 learning (Pica, Doughty & Young, 1986; Ellis, 1995; Gass & Varonis, 1994; Long, 1996; Loschky, 1994; Pica, 1994).

Thus in recent years, a whole range of studies attempted to deepen and widen understanding of the roles of social interaction in the second language classroom. These studies, recognized under the name of Sociocultural Studies, are mainly connected to Vygostsky (1978) and his contribution to the current understanding of learning as primarily a social enterprise, meaning that competences are first instantiated through social interaction and just then they

appear as intra-personal functions internalized by the individual. There are two fundamental notions of Vygotsky (1978) relevant to my argument on dialogic interaction in the present study. First is the Zone of Proximal Development or ZPD, a concept explaining that there is a developmental space in which a learner is not able to accomplish a certain task by him/herself today, but may be accomplished with help from a peer or a more experienced person. This ability may be further appropriated by the learner as s/he works on the task and is gradually given more and more freedom to do so. The developmental space is explained by Vygotsky in the following definition of a learner's ZPD:

> The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, p. 86)

The microgenetic process of learning depends on interaction between the learner and a more experienced participant in the form of supportive dialog in which for intellectual growth to occur in the learner, the expert 'must' provide mediation through supportive dialog within the learner's ZPD (Hawkes, 2012, p. 27). This situation was given the metaphor "scaffolding". Scaffolding as verbal assistance or dialogic support was further developed most significantly through the seminal study by Wood, Bruner and Ross (1976) that identified scaffolding in terms of six functions of dialogic assistance provided within mother-child talk during problem solving activities (i.e. recruiting interest in task, simplifying the task, maintaining pursuit of the goal, marking critical features and discrepancies between what has been produced and the ideal solution, controlling frustration during problem-solving, and demonstrating an idealized version of the act to be performed). From these six characteristics, researchers in the field have not only

discovered the nature of scaffolding, but crucial information that the learning process is a highly challenging one in the sense that what is required cannot be achieved without significant help.

Concisely, based on the second language learning context, scaffolding, according to Hawkes (2012) may refer to "the help which the teacher or peer provides through dialogic interaction with the learner so that s/he is able to complete successfully a task s/he could not manage alone", and "critically, this help is both affective and cognitive in orientation, provided within the learner's ZPD and is temporary, contingent, and in continuous adjustment" (p.30).

L2 development through meaning-focused peer-peer interaction

Scholarly works on the role of dialogic interaction in improving L2 oral proficiency and literacy skills within the scope of sociocultural theory have been extensively explored, however, literature on the impact of spontaneous L2 discussions during classroom language lessons remain scarce and warrant further examination (Hawkes, 2012). It has been previously demonstrated that through guided feedback (Aljaafreh & Lantolf, 1994; Ohta, 2000), or peer-to-peer collaborative interactions (Donato, 1994; Ohta, 2001), explaining or discussing L2 in L1 had helped improve student's L2, but little attention has been given to issues concerning L2 learning via meaning-focused dialogic interactions (Nassaji & Cumming, 2000; Takahashi, Austin & Morimoto, 2000; van Compernolle, 2010). Of the few studies that did, focus were on "teacher-learner interactions instead of learner-learner initiations" (Hawkes, 2012, p. 52).

Hypothetically speaking, a central role for spontaneous oral classroom interaction in L2 learning according to Hawkes (2012) is based on 3 fundamental aspects of sociocultural theory: the distinctive roles of spontaneous and scientific knowledge; the central role of dialogic

interaction in all learning, and the concept of internalization. Vygotsky was firm in his assertions that the primary goal of instruction was scientific or explicit conceptual knowledge - he was unequivocal in his requirement that for conceptual knowledge to be fully operational, it should be linked to activity that spurred 'spontaneous' knowledge, one of which involves concrete communicative (spoken and written) lessons (Lantolf & Johnson, 2007; Lantolf, 2008). Students are often able to achieve sufficient control of his/her explicit knowledge through guided spontaneous talk as it offers the ideal context for praxis. As a result, access to the said knowledge is unobstructed and can be instantly utilized for meaningful communication.

In the long run, meaning-focused spontaneous talk facilitated by an expert i.e. teacher, more proficient peers, generates language components (i.e. forms, functions, use) that are available for allocation to both the individual learner-interlocutor and the other learners in the same setting. The call for separation of learning from acquisition is almost nonexistence in Vygotsky's sphere of learning theory (Dunn & Lantolf, 1998). By learning and engaging in spontaneous peer-peer interaction, one is predicted to acquire self-regulated, independent participation. A successful L2 lesson necessitates that errors and approximations should be part of the acculturation and initiation process. Feedbacks that are sensitive to need of the students encourages them to talk more than s/he is able to produce without (Ohta, 2001) and leads him/her to internalize new L2 knowledge and move from other-regulation towards self-regulation. As Frawley & Lantolf (1995, p.42) exert, "speaking is the exercise of control of objects, of others, and of self". Finally, through spontaneous L2 talk, responsibilities for initiation, topic management and organization as well as questions are equally distributed. It also offers the learners the opportunity to learn with more in-depth aspects of L2 communication that further develop their communicative competence. Guided by the posited hypothesis, I will now

discuss the limited but growing number of peer-reviewed studies that promotes meaning-focused L2 interaction, most of which provide rich input and meaningful use of the L2 in context, which is intended to lead to incidental acquisition of the L2 (Norris & Ortega, 2001).

The work of Takahasi, Austin and Marimoto (2000) provide evidence of strategy learning through context-based classroom dialogic interaction. In their study of elementary-grade students learning Japanese as L2, they show how students appropriated one particularly useful strategy initially used by the teacher to help themselves and each other remember previously learned material. In this case, it was the singing aloud of a mnemonic song, "Tai (I want)" that helped students remember certain syntactic features. At the beginning of the year, the teacher sang the song to the students to help cue their recall of specific learned items. The researchers show how, as the year progressed, the students used the song themselves to help cue their own memories and those of their peers by singing the song aloud whenever assistance was needed. The researchers argue that the singing of the song, learned through their incidental interactions with the teacher, is a compelling indication of the students' appropriation of an important learning strategy. In addition to appropriating strategies made available to them in classroom discourse, students in this study have been shown to be resourceful in creating their own effective learning strategies.

Repetition enables second language learners to keep focusing on what one is saying and to link between what they have said and still want to say (Roebuck and Wagner, 2004). Roebuck and Wagner's (2004) study was conducted to find out whether repetition could be taught as a means of conversational and private mediation in the L2 through meaning-focused dialogic interactions. A group of fourth semester college Spanish learners were instructed on the use of interactive repetition through a series of classroom activities. In one instance, a Spanish learner

had to repeat his partner's question in a task of dramatization, when he was not certain about his answer. By repeating the question, he took the time to focus on the meaning and think about the answer. Although this activity was too cognitively demanding, it served to introduce L2 learners to the concept of repetition as a conversational strategy. A more challenging form of strategic repetition involved getting students to interview each other and, at the end of the interview, to summarize what their partner had said. The researchers found that as student practices through dialogic interactions the varied forms of interactive repetition, they produced briefer segments in their repetition and instances of whispered "private speech" repetition. To the researchers, these signs indicated that internalization of repetition as a cognitive tool was taking place, mediated by learner-learner dialogic interactions in the target L2.

Xue (2013) conducted a qualitative study investigating Chinese adult students' lived experiences with meaning-focused dialogic group work and its effects on their English communicative competence. Specifically, the study sought to find out how group discussions in an authentic L2 context with native English speakers in a research-intensive public university in the Southeast of the United States influenced Chinese graduate students' communicative competence in the target language in terms of grammatical competence, sociolinguistic competence and strategic competence.

Employing a phenomenological approach, analysis of face-to-face, semi-structured individual interviews with the participants showed that learners' attitudes towards dialogic group work went through changes from initial inadaptation (dislike) to later adaptation or (acceptance), and the time for their adjustments ranged from half a year to one year. The results also revealed that group discussions greatly improved their English communicative competence in terms of Canale and Swain's (1980) grammatical competence, sociolinguistic competence, and strategic

competence. Learners also acknowledged that group discussions have incidentally helped them improve various grammatical features including pronunciation, vocabulary usage, and sentence structure by exposing them to real language resources and providing a variety of opportunities to practice English with native speakers in a natural way.

Additionally, through dialogic group work, students in the study reported to have become more aware of American students' characteristics, topics that interest them, and their favor of praise and compliment, expanding their cultural knowledge. The data also revealed that meaning-focused group discussions enhanced students' ability of employing appropriate communication strategies to make up for the deficiencies in language knowledge and repair their communication breakdowns. They realized that use of reduction strategies i.e. topic avoidance, message abandonment, usage of simple words or sentence structures to replace ones they were unfamiliar with inhibited development of their English communicative competence. However, since the sample size of this study is small with participants coming from only one public university in the United States, it can only be cautiously generalized to other cases of L2 learners. Additionally, data from this study was collected solely from interviews with participants, and methodological triangulation, which could increase validity of results generated from qualitative data, was not employed.

In an earlier study with similar focus on communicative competence, Gilmore (2011) explored the use of authentic input versus textbook input in meaning-focused dialogic interactions and their impact on L2 adult learners' development of linguistic, pragmalinguistic, socio-pragmatic, strategic, and discourse competencies in a university-based "Communicative English Course". In this 10-month longitudinal, quasi-experiment study, participants consisting of 62 second-year English-major students from four intact classes were randomly assigned to

either treatment or control groups. Training for both control and experimental groups focused primarily on developing learners' listening and speaking skills, but type of input to which students were exposed differed significantly between the two groups (i.e. authentic vs. textbook). The control group worked methodologically through selected textbooks whereas the treatment group received predominantly authentic materials which they then dialogically discuss in work groups. It was hypothesized that the richer input provided by authentic materials, combined with appropriate awareness-raising and learner-learner oral activities, would allow a wider range of discourse features to be incidentally noticed by the learners and lead to enhanced development of their overall communicative competence in the L2.

Same measures were used for both precourse and postcourse assessments which included tests on listening, pronunciation, C-test (cloze test), grammar, vocabulary, a discourse completion task, oral interview (based on the IELTS speaking test) and student role-play. ANCOVA analyses on the data comparing the effectiveness of the two different interventions showed significant differences between the studied groups on postintervention scores for eight of the measures: listening, receptive pronunciation, receptive vocabulary, body language, oral fluency, and interactional competence subcomponents of the IELTS oral interview, conversational behavior and conversational management subcomponents of the student-student role-play. This study suggests that components of the communicative competence model appear to have been amenable to training to some degree, when classroom context allowed learners to attend to, or incidentally notice, relevant linguistic or paralinguistic features from authentic input and dialogic interactions among groups.

Nakatani (2010) investigates whether the use of specific communication strategies can improve learners' English proficiency in communicative tasks conducted through meaning-

focused dialogic interactions. 62 Japanese college students participated in a 12-week course of English lessons using a communicative approach with strategy training. To investigate the influence of specific strategy use, learners' performance on a post training conversation test was analyzed through multiple data collection procedures. Transcripts of the test were analyzed in terms of production rate, the number of errors, and actual strategy use. An Oral Communication Strategy Inventory was introduced to elicit participants' communication strategy use for a self-report questionnaire procedure. These results were compared with participants' retrospective protocol data regarding their oral test performance. The findings confirmed that strategies for maintaining discourse and negotiation of meaning could enhance learners' communicative ability. Yet the students used a relatively small number of examples of modified output, which indicated that they might not have enough opportunities to improve the form of their utterances.

Todhunter's (2007) case study investigated spontaneous interpersonal communication in a high school Spanish classroom, using instructional conversation as a framework for analysis. Instructional conversations are collaborative, extended verbal exchanges in which students develop a coherent topic, supported by the teacher's contingent questions and feedback (Todhunter, 2007). The features, length, and frequency of instructional conversations were examined in this study. Analysis of discourse led to a set of distinctive features adapted from the bilingual instructional conversation model. Seventeen instructional conversation episodes constituted 7% of the total time in 18 observed lessons, occurring typically before the teacher's planned lesson activities and at transitions in the lesson. The potential value of instructional conversations for developing oral skills in the L2 suggests that they deserve the attention of L2 instructors and researchers, and a more prominent place in the language classroom.

Language classrooms are often said to provide little opportunity for student-generated talk and meaningful use of language. However, Ernst (1994) shows that one classroom event, the talking circle, can provide a rich opportunity for students to extend their receptive and productive repertoires in the L2. This type of instructional activity creates opportunities for learners to engage in meaningful peer-peer communication, on the one hand, and to practice recently acquired social and linguistic knowledge, on the other. A microethnographic analysis was employed to examine one talking circle in an elementary ESL classroom in relation to specific academic, social, and communicative requirements that constrain or enhance language use and language learning. The content of the talk during this talking circle has principally been related to procedural matters and students' personal experiences. Distinctive characteristics of student talk were visible at least in three levels: Topics discussed involved personal experiences, contributions to the talk frequently took the form of narratives, and speakers seemed more concerned with conveying meaning than presenting linguistically correct information. Although these three characteristics might not be considered as top priority in traditional discussions of L2 acquisition, Ernst (1994) claims that 'they are as relevant to and as true of language learning as they are of students' needs to communicate' (p. 315). The results altogether illustrates the value of ethnographic research in increasing current understanding of talk and interaction in L2 classrooms.

Over the years, as evident in most of the studies reviewed in this section, the attention in L2 acquisition research through meaning-focused interaction has shifted to the focus on the integration of meaning-focused and form-focused instruction in order to optimize L2 development, claiming that such an approach benefits L2 learners. One way to accomplish this is through the incidental focus on form during meaning-focused activities. Some studies have

investigated incidental focus on form in different contexts and shown that it exists in L2 classes and facilitates L2 acquisition (Nakatani, 2009; Roebuck & Wagner, 2004; Takahashi, Austin, & Morimoto, 2000). Zhao & Bitchener (2007) on the other hand, investigated the effects of dialogic interactional patterns of teacher-learner and learner-learner on several features of incidental focus on form (i.e. types of focus on form; types of feedback; linguistic forms focused on and types of immediate uptake). Through microgenetic analysis, the data from over 10 hours of task-based dialogic interaction in the L2 revealed a significant difference in the types of form-focused episode that occurred between the two interactional patterns. In terms of the type of feedback provided, no difference was found between the teacher and learner interactional patterns but there is a difference in uptake responses between the two interactional patterns. The study notes that, in both teacher-learner and learner-learner interactions, incidental form-focused episodes occur frequently, and that the high frequency of immediate uptake facilitates opportunities for L2 learning. Because learners were found to be able to work as an effective knowledge source for each other, Zhao & Bitchener (2007) asserts that spoken interactions should be encouraged between learners in the L2 classroom.

In another similar line of research, Loewen (2005) examined the effectiveness of incidental focus on form in promoting second language (L2) learning through meaning-focused dialogic interactions. Seventeen hours of naturally occurring, meaning-focused L2 lessons were observed in 12 different classes of young adults in a private language school in Auckland, New Zealand. A total of 491 focus-on-form episodes were identified and used as a basis for individualized test items in which participants who participated in specific focus-on-form episodes were asked to recall the linguistic information provided in them. The results revealed that learners were able to recall the targeted linguistic information correctly or partially correctly

nearly 60% of the time 1 day after the focus-on-form episode, and 50% of the time 2 weeks later. Furthermore, successful uptake in a focus-on-form episode was found to be a significant predictor of correct test scores. These results suggest that incidental focus on form might be beneficial to learners, particularly, as Loewen (2005) maintains, if they incorporate the targeted linguistic items into their own production.

These are some of the very few empirical studies available in the current literature that make meaning-focused peer-peer interaction the focus of both learning within the ZPD and its claims to demonstrate L2 oral proficiency and literacy skills development. As exploratory and paradigmatic as their findings may be, they indicate nevertheless that within educational discourse between learner-learner and teacher-learner dialogic interactions, there is the opportunity for learners to internalize not only linguistic forms but other functional, pragmatic and social aspects of language knowledge thus enhancing their communicative competence in the target L2. Although learners initially exhibit inadaptation to dialogic-based activities in the L2 classroom, through gradual exposure, they eventually transitioned to accepting the approach as having a positive impact on their grammatical, sociolinguistic and strategic competences in the target language (Xue, 2013).

Meaning-focused dialogic interactions, when combined with use of authentic materials in the L2 classroom, optimize communicative competence development (Gilmore, 2011). It can be conducted through various forms i.e. through talking circle (Ernst, 1994), extended teacher-learner verbal exchanges (Todhunter, 2007), and more commonly, through incidental focus on forms during meaning-focused dialogic peer-peer activities (Nakatani, 2009; Roebuck & Wagner, 2004; Takahashi, Austin, & Morimoto, 2000; Zhao & Bitchener, 2007). Regardless the various methodological approaches employed in these studies, meaning-focused interactions

have come to show significant impact particularly on the development of linguistic, sociolinguistic, and strategic competences of L2 learners (Gilmore, 2011; Nakatani, 2009; Roebuck & Wagner, 2004; Takahashi, Austin & Morimoto, 2000; Xue, 2013).

To recap, sociocultural theory asserts that all learning is social before individual, shared and co-constructed before appropriated and internalized. Language, as everything else, is learnt through collaborative talk and L2 learning can be optimally achieved through assisted dialogic performance or scaffolding within the learners' ZPDs. L2 learners can mediate learning with and for each other, especially within an instructional setting especially when together with the teacher playing a unique role as facilitator (Hawkes, 2012). The review in this section suggests that there are evidences that participation in spontaneous talk initiates learners into a broader range of interactional practices that they enjoy beyond the teacher-dominated classroom discourse. Additionally, dialogic interactions afford learners opportunities to acquire new lexis and to gain greater control over their existing linguistic resources.

Within L2 learning, peer-peer spontaneous talk is theorized to be particularly rich in terms of L2 learning opportunities as long as teachers can provide dialogic activities that elicit higher levels of learner initiations, as these may harbor and sustain learner's interest. This type of classroom talk will provide useful opportunities for learners to get feedback within their ZPDs, and the opportunities for learners to produce language in communicative activity may give them greater awareness of the language they are using. Internalization may also be facilitated through such interactions. The ease with which learners may orient to the context may free up some attention for noticing the form of their utterances as well as the meaning.

Unfortunately, this type of talk is hard to achieve in L2 classrooms worldwide because of the dominance of the initiate-response-feedback (IRF) patterns of discourse which are

incompatible with Vygotsky's concept of scaffolding. The lack of spontaneous L2 interaction in second language classrooms has been a central concern for as long as the Communicative Language Teaching has been the dominant pedagogical approach. Spontaneous L2 interaction is all but absent in most classrooms, and they typically represent the main, if not only, source of language experience for L2 learners, especially in Malaysia. For this reason, specific strategies are required to change the dominant discourse patterns and construct alternative and ultimately more productive, patterns of discourse such as peer-peer dialogic interaction. Whilst the precise nature of the relationship between interaction and L2 learning remains undetermined, the studies I reviewed come to show that it is nevertheless broadly accepted within the field of SLA that greater opportunities for dialogic interaction benefit L2 learners' development of literacy skills in the target language.

Coming back to the issue on Malaysian students' literacy attainment in the L2, this is a difficult area of education with no neat solution. Above all, issues pertaining to the students' English literacy attainment require immediate solution from an intervention that would work more practically in a typical Malaysian public school. Furthermore, I believe that given the opportunity to first improve their overall literacy attainment in English through spontaneous peer-peer interaction in the classroom will significantly boost their performance in other subject areas of learning which can then be translated into improved scores in international level assessments. I now turn to discuss such alternative in the following section.

The Current Study

Collaborative Reasoning (CR) was employed in the current study aiming to address the gap in need for a more dynamic literacy intervention program that can be practically used by

teachers in the classrooms to help promote literacy attainment and thinking skills in the L2 among secondary school students. CR is an alternative teacher-guided peer-peer small-group discussion approach to productive talk developed in the early 1990s by the University of Illinois's Center for the Study of Reading. The CR approach is a peer-led and open-format discussion where student, guided by their teachers, speak freely as they would in social contexts, on controversial issues relevant to their current age (Clark, Anderson, Kuo, Kim, Archodidou, & Nguyen-Jahiel, 2003). The approach also calls for more and better talk in classrooms, which have steadily shown to be effective in improving students' oral language skills, critical thinking and content understandings beyond what tests required. Evidently, peer social interactions in CR serves as a means for student to develop the discourse of reasoned argumentation – a valuable skill that helps them to organize, comprehend and evaluate complex and competing ideas (Anderson, Chinn, Waggoner, & Nguyen, 1998; Miller, Jadallah, Nguyen-Jahiel, & Anderson, 2011).

Also, CR helps build communication competence, a skill hardly being practiced in real life social situations, particularly in English, Malaysia's second language. Most often than not, these highly valued oral skills are not measured in most standardize tests, curriculum programs, or intervention efforts, yet academic and professional success depends on them as they are the "major gate-keeper skills" where too many students who lack them "are being stopped, and turned away at this gate" (Zwiers & Crawford, 2011, p. 5).

CR is theoretically grounded in Vygotksy's proposition that interaction and cooperative learning can promote cognitive growth of less competent student with aid from their teacher or more skillful peers "as they share knowledge through social interaction" (Dixon-Krauss, 1996, p. 18) . The highly skillful individuals may be expected to have some expertise in recognizing the

child's current level of functioning and adjusting instruction to support the child's efforts (Wood et al, 1976). Copple & Bredekamp, (2009) further supports this view stating that "scaffolding", defined as providing appropriate support and assistance, is a critical feature of successful teaching and can include modeling a skill, providing hints or cues, and adapting material or activity. According to McLeod (2010), scaffolding is most effective when the support is matched to the needs of the learner.

In CR, students learn to use the discourse of reasoned argumentation to discuss stories or texts that they have read in small heterogeneous groups of 5-8 mixed-proficiency students with the teacher acting as a facilitator (Zhang, Anderson, & Nguyen-Jahiel, 2013). Prior to the group discussions, students first read a story filled with multiple and competing points of view that leaves them with an unresolved question at the end (Miller et al, 2011). The question, also known as the "Big Question", is central to the issue brought up in each of the stories and students are expected to discuss about it in their assigned small groups. Some of the big questions include: *"Are zoos good places for animals?"* from a story entitled *A Trip to the Zoo* (Reznitskaya & Clark, 2001), "*Should Amy let the goose go?"* from a story entitled *Amy's Goose* (Holmes, 1977), *"Should Stone Fox let little Willy win the race?"* from the story entitled *Stone Fox* (Gardiner, 1980). These stories cover a wide-range of issues including friendship, fairness, justice and equality, duty and obligation, honesty and integrity, winning or losing, ethnic/racial identity, and child-friendly policy issues (Zhang, Anderson, & Nguyen-Jahiel, 2013).

When discussing the big question, students engage in interactive argumentation (Chinn & Anderson, 1998) and each one of them is expected to take a position, and back their decision with reasons and evidence from text and background information (Kim, Anderson, Miller, Jeong,

& Swim, 2011). They are also expected to listen carefully and respond respectfully to other student's arguments using counterarguments and rebuttals when they disagree, while striving to make a good decision of the issue raised in the story they have read (Anderson, Chinn, Waggoner, & Nguyen-Jahiel, 1998; Zhang, Anderson, & Nguyen-Jahiel, 2013). Students who participate in CR discussions are not necessarily required to reach a consensus on the issue; rather, they are encouraged to explore multiple perspectives and diverse ideas and make careful judgment on them (Anderson, Chinn, Waggoner, & Nguyen, 1998; Kim et al., 2011).

Empirical studies evaluating the impact of CR over the last 20 years have consistently shown positive impacts on children's cognitive and social development (Anderson, Chinn, Chang, Waggoner, & Yi, 1997; Anderson, Chinn, Waggoner, & Nguyen, 1998; Chinn & Anderson, 1998; Chinn, Anderson, & Waggoner, 2001; Dong, Anderson, I. H. Kim, & Li, 2008; Dong, Anderson, Lin, & Wu, 2009; Hsu, X. Zhang, Anderson, (*under review)*; Kim, Anderson, Miller, Jeong, & Swim, 2011; Kim, Anderson, Nguyen-Jahiel, & Archodidou, 2007; Lin et al., 2012; Ma et al. (*under review*); Miller, Anderson, Morris, Lin, Jadallah, & Sun, 2013; Morris, et. al, 2011; Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, Archodidou, & Kim, 2001; Reznitskaya, Anderson, Dong, Li, Kim, & Kim, 2008; Reznitskaya, Kuo, Clark, Miller, Jadallah & Anderson et al., 2009; Sun, Anderson, Perry, & Lin, 2011; Zhang, Anderson, & Nguyen-Jahiel, 2013; Zhang, Anderson, Dong, Nguyen-Jahiel, Li, Lin, & Miller, 2013).

Higher-order thinking, which involves the ability to think creatively and abstractly, execute decision-making, analyze theories and active mental constructions, is important and necessary to help students gain deeper understandings of subjects like mathematics and science (Zohar & Dori, 2003). It has been shown that curriculum focused on higher-order thinking increases student achievement, especially students' problem-solving and critical thinking

abilities (Pajkos & Klein-Collins, 2001). Nonetheless, the majority of Malaysian public schools do not routinely promote learning that is centered on higher-order thinking. Instead, these students are more likely to experience instruction focused on rote learning of low-level skills (Zwiers & Crawford, 2011). CR on the other hand envisioned that higher-order thinking is an achievable goal for all students and that peer discussions can provide the necessary support and guidance for low-ability students to engage in higher-order thinking.

A thorough analysis of fifty-four transcribed CR discussions of middle-school students showed that CR develops analogical reasoning in children (Lin et al., 2012). The study found that students frequently used analogies to support their arguments, and these analogies were produced at the relational level rather than just the surface level which were helpful when arguing the big question (Lin et al. 2012). Lin et al. (2012) argued that this could have occurred because CR offers plenty of opportunities to exercise analogical retrieval, mapping and interference from one domain to another, allowing them to bridge an experience with adults.

CR also engages students in active social processes in which thinking strategies are enacted. Study showed that CR has helped develop underserved middle-school students' understanding of complex systems thus improving their systems thinking, especially multi-link reasoning (Lin et al., 2011). Miller et al. (in press) further demonstrated the effects of CR in motivating science learning where children exposed to argumentative discussions who began with incoherent scientific models displayed higher rates of conceptual growth, in that students had better text comprehension when assessed after the intervention.

Additionally, CR enhances individual learning outcomes. Reznitskaya et al. (2001; 2007) found that CR leads to better argumentation in individually written persuasive essays. In the study, middle-school children who participated in a 5-week period of intervention produced

essays that contained more compelling arguments, counterarguments, rebuttals, uses of formal argument devices, and citations of text evidence than essays of comparable students who had not participated in CR discussions. It is important to note that CR discussions do not include writing instruction thus the results implicate that intellectually stimulating discussions as the source of generalized and transferable skills of argument. These results were later replicated in numerous subsequent studies (Dong et al, 2008, 2009; Kim et al., 2011; Morris et al., (2011); Zhang et al., 2013; Zhang et al. (2013). This finding is consistent with Vygotsky's theory that cognitive processes occurring on the interpersonal plane will be internalized by individual children (Vygotsky, 1981).

In terms of L2 production, communication apprehension has been regarded as one of the most important affective factors influencing second language acquisition (Young, 1991) yet anxiety correlates negatively with achievement (MacIntyre & Gardner, 1991). Such situation can be seen in the Malaysian classroom where second language learners, including those who scored well in comprehension and writing, feel apprehensive, awkward, shy and insecure when asked to speak in the L2 in the classroom (Wan Mustapha, Ismail, Ratan Singh, & Elias, 2010). Through CR, however, rate of L2 talk among 75 Spanish-speaking middle-grade students in Chicago had shown a twofold increment and the students produced more coherent narratives in an oral storytelling task, containing a much diverse use of vocabulary (Zhang et al., 2013). This finding was supported by the overall findings in Ma et al. (*under review*) and Hsu, X. Zhang, & Anderson (*under review*). Zhang et al.'s (2013) study also showed improvements in L2 learners' listening and reading comprehension and the students wrote essays that were greater in length and vocabulary diversity and contained higher argument quality, replicating results of earlier studies (Dong et al, 2008, 2009; Kim et al., 2011; Reznitskaya et al., 2001). The results

altogether show that the effects of CR has been consistent across the US, China, Korea, and Japan and is warranted to be further replicated on the Malaysian ESL population.

Moreover, Rohrbeck et al.'s (2003) meta-analysis concluded that minority students benefited more in terms of academic outcomes from peer-assisted learning (PAL) interventions than students from the dominant culture. The study suggested that PAL (conceptually similar to CR) might establish links between home and school, thereby providing continuity in the learning process. Thus, I deem CR to be potentially capable in filling the gap for a literacy intervention that will afford Malaysian secondary school students to engage in free-flow dialogic interactions in the target L2, and accelerate their critical thinking skills in the area of argumentation and decision-making. Thus far, CR has been used primarily either with L1 speakers with more favored backgrounds (cf Reznitskaya et al., 2001), or with L2 learners who are either immersed in the L1 environment (e.g. Zhang, J., Anderson, & Nguyen-Jahiel, 2013), or adult L2 speakers at university level in foreign language environment (e.g. Hsu, X. Zhang, & Anderson, *under review*). Because the effects of CR extends to under-served minority and L2 students in the United States and to students in East Asia (i.e. China, Korea, and Japan), I believe that adapting the approach in Malaysian students' learning of English as a second language is a promising idea. In this study, I wanted to know whether CR discussions enhanced Malaysian secondary school students' L2 literacy skills development. Specifically, I investigated whether or not CR improved reading fluency, writing and speaking skills of 8th grade Malaysian schoolchildren learning English as L2.

CHAPTER 2

METHODOLOGY

Participants

430 (221 boys, 209 girls) participated in this study which involved 12 Form 2 (equivalent to 8th grade) classrooms in three public secondary schools in an urban area of the state of Selangor, Malaysia. Students, by classrooms, were randomly assigned to treatment (N = 206) or waitlist control (N=224). All classrooms have a predominate enrollment of ESL students from different ethnicities i.e. Malays, Chinese, and Indians, and they came from a family background income of slightly above the national average. In each school, two classrooms were randomly assigned to implement Collaborative Reasoning discussions while the other two served as controls. Ultimately, 6 classrooms received the CR treatment and another 6 served as controls. According to school records, none of the 430 children has a learning disability. Any parents who had not withdrawn their children from the study were included in the analyses. It should also be noted that the initial total number of students consented and assented to participate in this study was 438 students. However, 8 students were excluded from my final analyses because of the following reasons: 3 students moved to another school, 4 students had attendance gaps and due to time constraints, I was unable to make up for their missed pretests and posttests, and 1 student was involved in a fatal motorbike crash. Therefore, these students were excluded from data analyses resulting in a total N = 430.

Measures

Reading fluency test. The Reading Fluency Sentence Verification Test is designed to measure students' general reading fluency to be used as a covariate and predictor variable in further analyses. The Reading Fluency Sentence Verification Test comprised of 110 sentences (55 true and 55 false sentences) (He, 2007; Wu et al., 2013; Miller, et. al., in press). Students are instructed to read the sentences and mark them true or false. The sentences are designed to be obviously true or false so that students will have a very high level of accuracy if the sentence was actually read. The number of sentences insures that few, if any, children can finish all the sentences in the allowed time while not being so long as to discourage children. The number of syllables in the correct items completed in five minutes constitutes the reading fluency score. The reading fluency test was then used to represent students' initial levels of English proficiency because it was the strongest predictor and has greater theoretical connection to reading speed, a crucial skill that level of engagement in CR discussions may be dependent upon. See Appendix A.

Student Questionnaire. The student questionnaire comprised of three sections: initial interest in classroom talk, initial interest in L2 activities and the test of Need for Cognition. The first two sections were adapted from the survey questions developed by the Collaborative Reasoning research group which were used to elicit student characteristics in their 2008 *Mindful Instruction Study*. These three components were used to elicit student characteristics prior to the implementation of the program. Along with the initial reading fluency test, these three components primarily served as covariates and predictors in further analyses. They were also used to establish comparability between the two treatment groups at the onset of the implementation. See Appendix B.

Initial interest in classroom talk. An 11-item scale was used to assess students' individual interest in classroom talk (IIT) prior to the study. Students responded to each question (e.g., "*I like to answer my teacher's questions*") and mark their answer on a 4-point Likert scale ranging from 1 (*not at all true*) to 4 (*very true*). The mean of these 11 items for each individual student were used as indicator of his or her initial interest in classroom talk.

Initial interest in L2 literacy activities. Students' prior individual interest in L2 literacy activities was measured through an 18-item scale covering aspects of students' perceived interest and performance in reading, writing, and participating in L2 discussions (e.g. *I like reading about new things in the English language; I like writing essays and stories in the English language; I usually talk a lot in the English discussions in my classroom*). This section also elicited information on students' perceived attitudes toward the L2 and its importance and usefulness (e.g. *I usually work hard for the English language subject*; *I think the English language is important and useful for me*). A 4-point Likert scale was used elicit student answers, ranging from 1 (*not true at all)* to 4 (*very true*). The mean of these 18 items for each individual student were used as indicator of his or her initial interest in L2 literacy activities

Need for Cognition Survey. The Need for Cognition Survey (NFC) was included as a predictor measure to establish comparability of cognitive needs between the two treatment groups and to control for any individual difference between students due to a stable tendency to deeply process ideas (Miller, 2011). The short version of this survey was originally designed for adult participants (Cacioppo, Petty, & Kao, 1984) thus language alterations had to be made from the original to make it easier for children to read and understand (Miller, 2011). The version used in this study followed the modification made by Miller et al. (*in press*) where four of the items in the original survey were removed as they were deemed to be outside of children's experience

and could not be made appropriate by simplifying the language items resulting in a 14 item survey. However, because the scale used in this study was different from that used in Miller et al. (*in press*), no attempt was made to compare results from this study to it and to other previous work using the NFC survey. The mean of these 14 items represented the NFC score for each individual student to be used in subsequent analyses.

Reflective essay. Both CR and non-CR classrooms were asked to write a reflective essay individually in response to a story that had not been previously read or discussed by any of the students. This essay writing task replicated Reznitskaya et al.'s (2001) study which used a text titled *The Pinewood Derby.* The text was a short story about Thomas, an unpopular boy in school who wins a model car race, but breaks the rule by not making his car by himself. He confesses to his classmate, Jack, that he has actually gotten help from his brother in building the car. Jack has to decide whether he should tell on Thomas. On the one hand, Jack feels disappointed that he has not won the race despite all of his hard work he has done on the car, and thinks that Thomas does not deserve to win by cheating. On the other hand, he feels sorry for Thomas who has probably ever won any prize in his life, and acknowledges that no one likes a tattletale. After reading the story, students were given 20 minutes to write an essay about whether Jack should tell on Thomas. See Appendix C for full text of the story and task.

Oral transfer task. In a one-to-one interview format, students were asked to present their views on a controversial topic in English. Students were first given a copy of the passage titled, 'Whales, what will we do?', a text that was never discussed in the CR sessions before. The text was originally developed and used by the Collaborative Reasoning Research Group in their *Mindful Instruction* (2008) study with non-mainstream children in the United States which bears the big question of: *Should we allow people to hunt whales?* Before posing the big question, the

experimenter read aloud the passage as the interviewee followed along. All students were also told that they were expected to provide reasons and evidence to support their positions.

Students were given ample time to generate and spontaneously share their thoughts on the issue. The experimenter will only provide prompts to elicit further answers from the students when they stopped short before positing a complete argument. For instance, students were prompted to provide supporting reasons when they only state a position of a yes or no to the big question. In the absence of providing a counterargument, the experimenter will ask the students whether there might be people who would disagree with their stance and what would the people's reasons be. In the absence of a rebuttal, the students would be asked what they would say to the people who may not agree with them. Finally, students were asked if they have anything else to say about whether or not people should hunt whales. Students were also given the opportunity to ask the experimenter any questions they may have at the end of the interview. Each of these sessions were audio-recorded and the students were made aware of this at the onset of the task. See Appendix D for full text and task.

Discussion interest survey. A 10-item scale were used to assess the influence of different approaches to discussion (CR vs. teacher's own repertoire in conducting discussion) on children's interest in classroom discussion at the end of the study. The scale was conducted in parallel format such that the item targeting at CR discussions for the students in the CR group and classrooms discussions in a more general sense for students in the waitlist control group. The interest in classroom discussion measure comprised of 6 items assessing interest and enjoyment (e.g. "I am very excited about participating in CR discussions" in the CR group versus "I am very excited about participating in classroom discussions" for the control group). A 5-point Likert scale was used to elicit student answers, ranging from 1 (*not true at all)* to 5 (*very true*).

The mean of all the 10 items was used as an indicator of students' subsequent interest in discussion. See Appendix E for complete list of survey items.

Coding of essays and oral transcripts

The audio-recordings from the oral transfer task were transcribed in verbatim using the InqScribe Version 2.2 software following the Systematic Analysis of Language Transcripts (SALT) conventions (Miller & Chapman, 2010). Two transcribers were blind to whether students had received the CR intervention. Each language transcript was segmented into Communication units (C-units), a rule-governed and consistent way to segment utterances (Loban, 1976). The transcripts were also coded for bound morphemes, omissions, pauses, errors, and mazes including repetitions, false starts, and filled pauses. A third transcriber reviewed the transcripts who searched for and corrected transcription errors. The final transcripts were analyzed using the SALT software and all of the standard measures were computed including transcript length, (*total number of words*), vocabulary diversity (*number of different words*), verbal fluency (*time length, words per minute*), and mazes (*percent of mazes*).

Coders initially worked together to achieve an interrater kappa reliability of 0.90; thereafter, they coded the sample of audios to prevent any drift in reliability. All audios were double-coded to ensure accuracy of the codes assigned. For measure of argument quality, the transcripts were also separately coded and analyzed for frequencies in Dedoose Version 4.5, an online application for qualitative and mixed methods research following Hsu, X. Zhang and Anderson's (*under review*) conventions which included binary measures of the presence or absence of spontaneous counterarguments, prompted counterarguments, spontaneous rebuttals, and prompted rebuttals.

The reflective essays were coded in parallel to the language analysis of the oral transfer task. Each student essay were segmented into C-units following the SALT transcript conventions, and standard language measures of reflective essays were also calculated using SALT which included transcript length, (*total number of C-units, total number of words*), vocabulary diversity (*total number of different words, type token ratio*), and syntactic complexity (*mean length of utterance,* and *subordination index*). Additionally, using the Dedoose Version 4.5 online application, the essays were coded for argument quality adapting the work of Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, and Archodidou (2001) and Zhang, Anderson, and Nguyen-Jahiel (2013). Codes assigned include reason, counterarguments, rebuttals and use of textual evidence. Repeated reasons or those irrelevant to the big questions were not given credits.

Procedure

12 8th grade classrooms from three neighboring public secondary schools in a semi-urban area in Selangor, Malaysia were randomly assigned to one of two treatment conditions: CR and a waitlist control that will later implement CR once the data collection period was over. To minimize volunteer bias, assignment to treatment conditions were made after teachers, parents, and students had given consent to participate in the project.

Before the start of the intervention, all the English teachers of the involved classes from the three schools (N = 6) received a 1-day workshop on CR. They learn about the goals of CR, the research and theory on which the program is based, and how to promote students' literacy and thinking skills in English from it. They were also given the opportunity to practice CR sessions, evaluated one another's practice sessions and analyzed how CR sessions fit into their

instructional practice. The teacher teaching the control group throughout the 6-week intervention was asked not to use CR until after data collection period was over.

This study consisted of three phases: 1) pretests to establish baseline, 2) implementing treatment conditions, and 3) posttests. During the first phase, students in both groups completed four pretests. In a five-minute whole-class session, students were asked to take a reading fluency test to establish their initial proficiency status in the target language prior to the intervention. This test was adapted from previous research by the Collaborative Reasoning Research Group (Miller et al., in press). In a separate whole-class session, students were asked to complete a student questionnaire eliciting information regarding their social dynamics in their classroom and their attitudes towards classroom discussions and literacy activities in the target L2. Items in this survey were also adapted from previous studies of the Collaborative Reasoning Research Group (Wu, et al., 2013; Zhang et al., 2013) as well as from the works of Gottfried, Fleming, & Gottfried (2001) and Guthrie, Wigfield, & Von Secker (2000).

During the second phase, students in the CR group receive a twice a week intervention while students in the waitlist control class continue to receive regular English instruction. The intervention begins with two small-group CR discussions on easy-to-read stories. The purpose of these easier stories was to introduce the students to CR, familiarize them with argumentation and free-flowing discussion, and promotes the emergence of child leadership (Li et. al, 2007; Sun et al., 2011). Reading levels and story length were subsequently increased over the weeks. A discussion of the "big question" followed each story, with the teacher facilitating the discussions. During each discussion, students are expected to take position on each issue and provide supporting reasons and evidence for their opinions (Reznitskaya et al., 2001) and challenge each other's viewpoints. Altogether, students in the CR intervention participated in 12 sessions,

averaging roughly between 20-30 minutes in length over a period of six weeks. Students in the CR class were provided with the children's books to be used during the intervention. Once the project has been completed, the books were donated to the school library to be used by the English teachers with subsequent groups of children. Classroom instruction continues as normal for students in the control group.

During the third phase, students complete the posttest battery adapted from the Collaborative Reasoning Research group's corpus of tests and evaluation surveys. All students were first asked to attempt an oral transfer task during a one-to-one session with the researcher in a private room. This was to elicit their oral language production as well as oral argument quality. To assess proficiency status in the target language after the project ended, students in both groups were once again required to take the 5-minute Reading Fluency test. In another whole-class session, all students completed a 20-minute reflective essay writing test (Reznitskaya et. al., 2001) to assess written language outcomes and argument quality, and subsequently completed a survey on discussion interests which consisted of five-point likert-scale items.

Data Analysis Strategy

Because pretest occurred prior to group assignment, pretest data were analyzed in one-way analyses of variance. SPSS Advanced Statistics 22.0 was used for these analyses (IBM Corp., 2013). Issues inherent in the research design I employed required a more complex analysis strategy for posttest data. Students in the treatment condition engaged in CR discussions in groups within different classrooms during the entire intervention period, which suggests that students within different classrooms cannot be expected to have outcomes independent from one

another. As such, the assumption of independence required for typical single-level analyses (i.e. ANCOVAs, Poisson, OLS, and logistic regressions) is not tenable.

One strategy to handle this problem would be to collapse classrooms into their means (e.g. Graham, Harris, & Chorzempa, 2002). This option however, is not a preferable option because use of classroom means would lead to loss of individual student information as well as difficulty in drawing meaningful conclusions from analysis results. Additionally, it is reasonable to assume that students within the control group will have outcomes independent of one another. I therefore employed use of multilevel modeling (i.e. hierarchical linear modeling, two-level Poisson and logistic regressions) as a strategy to account for the assumption of non-independence of students within treatment classrooms. I was aware of this study's small level-two sample size (less than 50 classrooms), which may lead to biased estimate of the second-level standard errors at the second level.

Nonetheless, I exhausted all possible multilevel models (i.e. fixed effects, random intercept, and random slope models) for all outcome variables involved to take into account for the fact that students within the same classroom may be more similar to each other than would be the case of a simple random sample. However, the Hessian Matrix was not in positive definite form in each of the analysis I conducted. For example, in my random intercept designs for classroom, no significant variances exist between the classrooms of the current sample. Students' performances from the same classroom were not any more similar than students from different classrooms among the three schools involved. The models were unable to uniquely estimate any variation from classroom to classroom, above and beyond the residual variance from student to student.

Since the use of two-level analyses cannot be justified, I proceeded with single-level analyses to infer causation from the CR intervention on the outcome measures. ANCOVAs and MANCOVAs were used to test for overall intervention effects on reading fluency, oral and written language outcomes as well as students' motivation towards classroom discussion. Follow up tests of normally distributed count and rate measures were evaluated using either ordinary least square regressions or ANCOVA analyses, depending on the model fit. Non-normally distributed count measures that fitted a Poisson distribution were analyzed using Poisson regressions and binary outcomes were analyzed using logistic regressions. All pretest scores were controlled in each analysis. A portion of the open-ended motivation survey responses were thematically analyzed following Aronson (1994).

Goals of the Study

The overall goal of the present study is to investigate whether 12 sessions of Collaborative Reasoning discussions conducted within a time span of 6 weeks would significantly impact the development of Malaysian secondary school students' English literacy skills and their motivation towards having group discussions in L2 English. I predict that engaging students in CR discussions will enhance students' reading, oral, and written English skills. I also anticipate that students' argumentation and reasoning skills in the target L2 will also be significantly impacted and that experiences of CR will also improve students' motivation and engagement towards classroom discussions in English.

Next, I was interested in investigating whether CR impacts students with varying levels of initial English proficiency differently. I anticipate that students with higher levels of initial English proficiency would benefit more from CR discussions on their oral and written outcomes

and that, students with lower levels of initial English proficiency would be more motivated and engaged in future classroom discussions. This study will also investigate whether students' varying levels of initial English proficiency have significant impacts on all the outcome measures.

CHAPTER 3

RESULTS

This chapter presents the results of the study beginning with analyses to establish the equivalence of the conditions on pretest measures. Then analyses of the differences between CR and Control conditions on outcome measures are presented, followed by analyses to determine whether condition differences were mediated or moderated by the initial English proficiency of the students, as represented by the pretest reading fluency measure. The possibility that condition effects were mediated or moderated by initial interest in speaking English, initial interest in English literacy activities, or need for cognition was also explored, but the few effects that appeared were weak and inconsistent, so these analyses are not reported.

Equivalence of CR and Control conditions

Table 2 summarizes the descriptive statistics of students' performance on the four pretest measures: Initial Reading Fluency (IRF), Initial Interest in L2 Talk (IIT), Initial Interest in L2 Literacy Activities (IILA) and Need for Cognition (NFC). Using the four pretest scores as dependent variables and condition as a fixed effect, a MANOVA analysis found no significant effect of the intervention condition, F (4, 425) = 1.67, p = .16; Wilks' λ = .98; η_p^2 = .01 indicating that the initial English proficiency (as reflected by the IRF score), interest in L2 talk and literacy activities, or the tendency to engage in thinking activities between students in the CR and control conditions were comparable prior to the implementation of the intervention. Further ANOVA analyses using gender as the independent variable showed that male and female students did not differ significantly in their performance on any of the pretests, ps > .05. No

significant interaction was found between intervention condition and gender suggesting that students of both genders in the two experimental conditions were comparable, $p = .69$.

Intervention Effects on Reading Fluency

Table 3 displays the descriptive statistics of students' posttest reading fluency scores. ANCOVA analysis using pretest scores as covariates found a significant difference between the CR and control conditions F (1, 424) = 83.78, $p = .00$; $\eta_p^2 = .17$. On average, students in the CR group scored 0.85 SDs higher than their non-CR counterparts in the Control group (see *Figure 1*). Of the four pretest measures, only the IILA measure was significantly related to the reading fluency outcome, F (1, 424) = 10.11, $p = .002$; $\eta_p^2 = .02$. Surprisingly, in the ANCOVA analysis, initial reading fluency did not predict later reading fluency scores, $p = .29$. There were no significant differences between male and female students and no interaction between gender and experimental condition was found, *ps* > *.05.*

Table 4 shows the correlations between post-intervention reading fluency and the four pretest measures – IRF, IIT, IILA, and NFC. It shows that only the IILA variable was significantly correlated with students' post-intervention reading fluency performance ($p < .01$). *Figure 2* suggests that students who reported higher enjoyment of English literacy activities made greater gains in reading fluency.

Intervention effects on Written Language Production

Six language outcome measures were derived from the transcripts of students' essays using SALT - Research Version (2010), which groups language measures into three categories: *essay length* (number of c-units produced, total number of words in the essay), *vocabulary*

diversity (total number of different words in the essay, type token ratio score), and *syntactical complexity* (mean length utterance score and number of subordination index produced). Four count measures of *argumentation quality* coded using Dedoose Version 4.5 (2013) consisted of reasons, counterarguments, rebuttals, and use of evidence from text. Table 5 shows the descriptive statistics of students' performance in the reflective essay task. In general, students in the CR group produced essays that were longer in length and greater in vocabulary diversity. The essays were also syntactically more complex, with higher argument quality scores. Using all pretest measures and gender as covariates, a MANCOVA analysis using an adjusted Bonferroni alpha level of .005 shows an overall significant intervention effect on written language production, F (10, 415) = 366.4, p = .00; Wilks' λ = .10; η_p^2 = .89. The IRF covariate was significantly related to the outcome F (10, 415) = 122.2, p = .00; Wilks' λ = .25; η_p^2 = .74 indicating that students' written language outcomes are related to their initial proficiency in English. There was no significant difference between male and female students, p = .85, and no interaction between gender and experimental condition were present, p = .92, indicating that the effect of CR discussions on written language outcomes is independent of students' gender.

Follow up tests of normally distributed count and rate measures were evaluated using either ordinary least square regression analysis or ANCOVA, depending on the model fit. Non-normally distributed count measures that fit a Poisson distribution were analyzed using Poisson regression analysis. All pretest scores were controlled in each analysis. Complete results are presented in Table 6.

The follow up analyses showed that reflective essays written by the CR group contained significantly a greater number of C-units (F (1, 424) = 658.46, p = .00; η_p^2 = .61), more words (β = .36, χ^2= 1675.35, p = .00, Glass's Δ = 2.06), greater mean length of utterance (MLU) (R^2 = .44,

F (5, 424) = 67.72, p = .00, Glass's Δ = .44), greater numbers of different words (β = .39, χ^2 = 1030.35, p = .00, Glass's Δ = 1.54, and a larger type token ratio (R^2 = .16, F (5, 424) = 16.58, p = .00, Glass's Δ = .57). There was no difference between conditions in the subordination index (R^2 = .75, F (5, 424) = 258.22, p = .86).

With respect to the quality of argumentation in students' essays, the CR group produced a significantly greater number of acceptable reasons (β = .68, χ^2 = 347.24, p = .00, Glass's Δ = 4.30), counterarguments (β = 1.02, χ^2 = 65.09, p = .00, Glass's Δ = 1.55), rebuttals, (β = 1.01, χ^2 = 33.88, p = .00, Glass's Δ = .97) and used more textual evidence in their essays (β = 1.39, χ^2 = 41.38, p = .00, Glass's Δ = 1.21). *Figures 3–8* display these condition differences as a function of initial English proficiency.

While CR discussions did not significantly affect students' production of complex sentences, as represented by the subordination index, this outcome measure was highly related to students' initial fluency (R^2 = .75, F (5, 424) = 258.22, p = .00), indicating that more proficient students produced more complex language regardless of intervention condition (see *Figure 6*).

The sample essays below illustrate the argument elements utilized by CR and Control students. These are typical essays written by students in both experimental conditions, respectively. The essays are typical in the sense that the total number of C-units coded and the total number of argument elements – reasons, counterarguments, rebuttals, and use of textual evidence – approximated the means for the two experimental groups. Each line represents a C-unit. The essays are presented first without SALT codes to make them easier to read. See Appendix F for a summary of the SALT transcription conventions applied in the coding of these essays.

Typical CR Student Essay

I think Jack should tell Mr. Howard about Thomas, because it's not fair if Thomas win's the competition.
Because Jack made his car by himself,[reason]
but Thomas' car was built by his brother.
So he's cheating.
The other reason is, because the story says Mr. Howard told them to build the car by themselves, [textual evidence]
so Thomas' brother shouldn't have helped him.
If there is anyone who would disagree with my answer.[counterargument]
They would say that Jack shouldn't have told Mr. Howard about Thomas.
Because Jack could hurt Thomas' feelings.
However, my reason is I think if it really hurt's Thomas' feeling, it's still not fair because Thomas shouldn't have lied about his brother helped him build his car[rebuttal]
and even if he never won a single prize, he should have work harder and try not to lie again.
Anyway he doesn't deserve the present for lying.
If anyone disagree with my answer again they would said that no one will believe what Jack had said.
I would said that even if no one will believe what Jack had told Mr. Howard, Jack should prove it.
We should always be honest because honestly is the best policy.

SALT-coded version of CR student's essay:

S: I think Jack should tell Mr Howard about Thomas, because it/'s not fair if Thomas win/'s *s the competition [SI-2].

S: Because Jack made his car by himself [SI-1].

S: but Thomas/' car was built by his brother [SI-1].

S: So he/'s cheat/ing [SI-1].

S: The other reason is, because the story says Mr Howard told them to build the car by themselve/s [SI-1].

S: so Thomas/' brother should/n't have help/ed him [SI-1].

S: If there is anyone who would disagree with my answer [SI-1].

S: They would say that Jack should/n't have told Mr Howard about Thomas [SI-1].

S: Because Jack could hurt Thomas/' feeling/s [SI-1].

S: However, my reason is I think if it really hurt/'s *s Thomas/' feel/ing, it/'s still not fair because Thomas should/n't have li/ed about his brother help/ed him build his car [SI-3].

S: and even if he never won a single prize, he should have work/*ed harder and try not to lie again [SI-2].

S: Anyway he does/n't deserve the present for ly/ing [SI-1].

S: If anyone disagree/*s with my answer again they would said [EW:say] that no one will believe what Jack had said [SI-2].

S: I would said [EO:say] that even if no one will believe what Jack had told Mr Howard, Jack should prove it [SI-2].

S: We should always/s be honest because honestly [EW:honesty] is the best policy [SI-2].

The essay produced by the average-performing CR student above contains 15 c-units with 94 different words and a subordination index of 1.47. In the essay, there were omissions of two word and two bound morphemes, and three word-level errors were produced. In terms of argument quality, however, the student clearly states his position and backs it with strong reasons, considers counterarguments, and suggests rebuttals of the counterarguments. The student employs the counterargument--rebuttal rhetorical form in his essay, "If someone disagrees, they would say that [counterargument], I would say that [rebuttal]". There was also good reference to text to further support his argument, "because the story says Mr. Howard…".

Typical Control Student Essay

My opinion is Jack should not tell the others about Thomas because may be it was a prize that he got a first time.[reason]
Maybe everyone had been working for the Derby car
but the point is we also will felt pity about Thomas.
If someone will be offer to the love (X) like him.
I think people will absolutely agree with me.
It's hard to have failed but it is worse to have no tried.
Thomas not a kid like others that wore branded clothes and also smell good at every

time.
In this condition, maybe everyone will take the chance to grab it,
it unfair to others but it will be the biggest things that he had even once in his life.

SALT-coded version of Control student's essay:

S: My opinion is Jack should not tell the other/s about Thomas because may be it was a prize that he got a[EW:the] first time [SI-1].

S: Maybe everyone had been work/ing for the Derby car [SI-1].

S: but the point is we also will felt[EW:feel] pity about[EW:on] Thomas if someone will be[EW] offer to the love X like him [EU] [SI-1].

S: I think people will absolutely agree with me [SI-1].
S: It/'s hard to have fail/ed but it is worse to have not tri/ed [S-2].

S: Thomas *is not a kid like other/s that wore brand/ed clothes and also smell good at every time [SI-2].

S: In this condition, maybe everyone will take the chance to grab it, [SI-1].

S: it *is unfair to other/s [S-1].

S: but it will be the biggest thing/*s[EW:thing] that he had even once *had in his life [SI-1].

The typical Control student's essay contained 9 c-units, using 68 different words. There was one omitted bound morpheme in the essay, five word-level errors, and one syntax-level error. This essay received a subordination index score of 1.14. The essay in general follows a typical argument rhetorical form of "[POSITION] because [REASON]" and contains many supporting arguments to support the position taken. However, as with many essays composed by Control students, one-sided thinking is evident: "I think people will absolutely agree with me", and the student continues to defend his stance. This essay also is consistent with the general finding that Control students seldom referred to textual evidence to validate their arguments, as the absence from the essay above illustrates.

Differentiated Intervention Effects on Written Outcome Measures for Students with Varying Initial English Proficiency

Table 7 shows the correlations among language measures coded from the reflective essays. The ten writing measures were significantly correlated with one another. Table 8 shows the correlations between students' pretest measures and the ten writing outcome measures. In contrast to measures of initial interest in L2 talk (IIT) and tendency to engage in thinking activities (NFC), the table shows that students' initial reading fluency (IRF) scores and initial interests in L2 literacy activities (IILA) were generally correlated with the writing measures, *ps* < .05. There was a strong positive correlation between the initial reading fluency measure and all of the outcome measures.

Hierarchical regression analyses were conducted using the ten writing outcome measures as dependent variables and Initial English Proficiency, Condition (CR vs Control), and the interaction between the two as the predictors. As shown in Table 9, there were significant interactions between experimental condition and students' initial reading fluency involving six written language measures. These are described in detail in the below.

Essay Length. In terms of essay length as represented by number of C-units and total number of words, there were non-significant trends toward an interaction between initial English proficiency and the CR vs. Control contrast, *ps* > .05. *Figures 3 and 4* illustrate these findings. It shows that students with varying initial English proficiency gained equally from CR discussions for both outcome measures. Consistent with previous ANCOVA and Poisson regression analyses, significant interactions were found between the CR vs. Control contrast, *p*s = .00.

Syntactical Complexity. For syntactical complexity, consistent with previous ordinary least square (OLS) regression analyses, CR vs. Control contrast were significant for mean length

utterance, $p = .00$, and non-significant for subordination index, $p = .31$. There was a significant interaction between initial English proficiency and the CR vs. Control contrast for mean length of utterance, $p = .00$, but the condition effect on the subordination index, however, remained non-significant, $p = .28$. *Figure 5* shows that students with lower initial English proficiency made larger gains from CR discussions in terms of mean length of utterance ($\beta = -.82$). *Figure 6* shows CR students and Control group with varying levels of initial English proficiency were comparable on the subordination index.

Vocabulary Diversity. A significant interaction between initial English proficiency and CR vs. Control contrast was found for type token ratio, ($\beta = -1.19$, $p = .00$). CR students with lower initial English proficiency showed larger gains from CR discussions as compared to low proficient students in the Control group (see *Figure 7*). While trend toward an interaction between initial English proficiency and the CR vs. Control contrast was not significant ($\beta = -.21$) for number of different words, *Figure 8* shows that among students with lower English proficiency those who participated in CR discussions had slightly greater vocabulary growth.

Argument Quality. A significant interaction between initial English proficiency and the CR vs. Control contrast was found only on the measure of counterargument, $p = .00$, but the positive regression coefficient found for the Condition * IRF interaction term in the analyses of all four outcome measures suggest that students with higher initial English proficiency gained from the CR discussions on written argumentation and reasoning whereas students with lower initial English proficiency did not benefit as much.

Intervention Effects on Oral Language Production

Table 10 displays descriptive statistics of 18 language outcome measures derived from the SALT analyses of students' coded verbatim transcripts from the oral transfer task. The measures consisted of six language categories: *length of response* (number of c-units, total number of words), *syntactical complexity* (mean length utterance, subordination index), *vocabulary diversity* (total number of different words, type token ratio score), *oral fluency* (time length, words per minute, between utterance pauses, within utterance pauses), *mazes* (number of mazes produced), and *omission and errors* (omitted words, omitted bound morphemes, word errors). Following Hsu, Zhang, and Anderson (*under review*), I evaluated *argument quality* through four binary outcome measures derived using Dedoose: spontaneous argument, prompted argument, spontaneous counterargument, and prompted counterargument.

Using all pretest scores and gender as covariates, a MANCOVA employing an adjusted Bonferroni alpha level of .003 shows an overall significant intervention effect on oral language production, F (14, 410) = 993.13, p = .00; Wilks' λ = .03; η_p^2 = .97. The IRF and NFC covariates were also significantly related to the oral outcome, F (14, 410) = 74.51, p = .00; Wilks' λ = .28; η_p^2 = .72 and F (14, 410) = 2.33, p = .00; Wilks' λ = .93; η_p^2 = .07, respectively. These results indicate strong effects of CR discussions and students' oral language outcomes can also be explained by their initial proficiency in English and their tendency to engage in activities that involve thinking. Students' initial English proficiency (IRF) predicted all oral outcome measures except the three fluency measures: words per minute, between- and within-utterance pauses, ps > .05. Students' NFC scores significantly predicted four outcome measures: the subordination index, between-utterance pauses, number of mazes, and word errors, ps < .05. There was no significant difference between male and female students, p = .15, and no interaction between

gender and experimental condition were present, $p = .73$. The lack of an interaction indicates that the effect of CR discussions on oral language outcomes is independent of students' gender. The IIT and IILA covariates were non-significant, *ps* > .05.

Follow up tests of normally distributed count and rate measures were evaluated using ordinary least square regressions. Skewed count measures were analyzed using Poisson regressions and binary outcome measures were evaluated through logistic regressions. All pretest measures were controlled in each analysis. Complete results are presented in Table 11.

Follow up analyses of individual oral outcome measures documented significant differences between the CR and Control condition in number of C-units ($\beta = .24$, $\chi^2 = 75.35$, $p = .00$, Glass's $\Delta = 2.13$), number of words ($\beta = .30$, $\chi^2 = 1213.24$, $p = .00$, Glass's $\Delta = 9.27$), mean length of utterance ($R^2 = .84$, F (5, 424) = 449.43, $p = .00$, Glass's $\Delta = 1.76$), number of different words ($\beta = .33$, $\chi^2 = 529.73$, $p = .00$, Glass's $\Delta = 4.29$), type token ratio ($R^2 = .10$, F (5, 424) = 16.58, $p = .03$, Glass's $\Delta = .03$), length in time ($R^2 = .16$, F (5, 424) = 16.58, $p = .00$, Glass's $\Delta = .57$), and words per minute ($R^2 = .06$, F (5, 424) = 6.65, $p = .00$, Glass's $\Delta = .57$). CR students also produced significantly fewer between- and within-utterance pauses ($\beta = 1.0$, $\chi^2 = 131.76$, $p = .00$, Glass's $\Delta = 2.83$ and $\beta = .843$, $\chi^2 = 426.25$, $p = .00$, Glass's $\Delta = 4.11$, respectively). Together these results indicate that CR students produced oral responses of greater length, with greater fluency, using more diverse choice of words, and with greater syntactic complexity.

However, compared to the Control students, CR students produced a greater number of mazes ($\beta = .20$, $\chi^2 = 81.23$, $p = .00$, Glass's $\Delta = 1.84$). CR students were more likely than Control students to omit words ($\beta = .51$, $\chi^2 = 15.94$, $p = .00$, Glass's $\Delta = .54$) and bound morphemes ($\beta = .21$, $\chi^2 = 8.89$, $p = .00$, Glass's $\Delta = .59$) but produced fewer word-level errors ($\beta = .23$, $\chi^2 = 20.74$, $p = .00$, Glass's $\Delta = 1.13$). There was no significant difference between the two intervention

conditions in terms of subordination index (R^2 = .27, F (5, 424) = 33.31, p = .06, Glass's Δ = -.08).

In terms of argument quality, CR students were more likely than Control students to produce at least one spontaneous counterargument (β = 1.92, χ^2 = 44.09, p = .00, odds ratio = 4.34), spontaneous rebuttal (β = 1.75, χ^2 = 33.42, p = .00, odds ratio = 4.57), and prompted rebuttal (β = 1.49, χ^2 = 45.92, p = .00, odds ratio = 2.81). There was no difference between conditions in likelihood of a prompted counterargument (β = .18, χ^2 = .21, p = .65, odds ratio = 1.25). See Table 12 for percentages of students with these argument elements. When prompted, students in the two intervention conditions were equally capable of offering a counterargument, but it is noteworthy that CR students were much more likely to do so spontaneously. Even when prompted, control students fell short of CR students in producing rebuttals.

The sample transcripts below illustrate the argument elements utilized by CR and Control students. These are typical spontaneous oral responses by students of higher initial English proficiency in the two conditions, in the sense that the total number of C-units coded and the total number of argument elements – reasons, counterarguments, rebuttals, and use of textual evidence – approximated the means for the two conditions. Each line represents a C-unit. The excerpts were taken just after the experimenter had asked the student the Big Question: "Do you think we should allow people to hunt whales?"

E stands for experimenter, and S stands for student. Student's responses are segmented into C-units. Mazes are captured in parentheses, and within C-unit pauses are indicated by colons. Between C-unit pauses are indicated by double colons if the pause was between two different speakers. If the pause is more than 3 seconds, the length of the pause is denoted following the colon. Omission is marked by an asterisk, and abandoned talk is denoted by the

angle bracket >. For ease of reading, codes for subordination indexing, bound morphemes, omitted bound morphemes, and errors are not indicated in the excerpts. See Appendix F for complete summary of SALT transcription conventions applied in this study.

Typical CR student

S: It's not really a yes, it's not really a no, it depends on the situation alright?

S: As in (um) let's start with the first point in this in this article.

S: It says (that) (um) that people have been hunting for whales for hundreds of years.

S: And there are some species that (you) (know) you know they're endangered.

S: So in my opinion the endangered ones should be left behind.

S: As in let them stay alive no matter how much fishes they ate.

S: You can't blame it all on the whales because like it says here, (uh) (uh) : other fish ate the fishes too.

S: And we human beings (are) are the ones who are actually (you) (know) you know causing all this chaos.

S: And basically I think (uh) you know the business stuff (it) it depends as in some people will take it as a serious matter.

S: And some people would say it's fine.

S: But in my opinion, I would say that whaling is an activity that yes, you can proceed and do it.

S: But then (not) : not to like overdo it as in to cause extinction to happen.

S: You need to have a rule or something like that to ensure they're still alive.

S: And so that other generations can also know and see them for real.

S: And at the same time you know (it's) (it's) it's kind of like a give and take thing.

S: (you) (you) you take the whales as food but at the same time you preserve them.

S: I guess that’s all.

The CR student spoke at a rate of 61.37 words per minute with 17 mazes and 2 pauses within C-units. 119 different words were used in her response, with a type token ratio of .51. The student considered both sides of the argument spontaneously and provided reasons for her claims. She also made clear reference to the text.

Typical Control Student

S: I think (those) (uh) those whales who are not endangered can (um) (um)>

S: I think that (uh) people should not hunt whales because for me : (they) (don’t) they don’t only have one source of food.

S: They have lots of other sources of food.

S: So (you) (know) (for) you know like it's for our future generation.

S: You never know if our grandkids will ever get to see what a whale looks like right?

E: Okay, do you think there would be people who would disagree with you?

S: Yeah : like : it helps other people's businesses : like some whales are>

S: Because you know like this is a good source of money for them like tourism: like whale-watching and all of that.

E: Do you think there would be people who would disagree with you?

S: Yeah.

E: What would you say to the people who may disagree with you?

S: Well : for me I think that that's allowed because (um) you know people (like) (you) like they don’t have much food so I guess this is the only way they could earn money so yeah (um) : (yeah) like>

S: I think that it's okay.

S: But (I) (think) : 05 I will say that they will no longer have the opportunity to see live whales anymore.

: : 04

E: Anything else?

S: Um I think no.

E: Alright, thank you.

The control student spoke at a rate of 48.91 words per minute with 8 pauses within C-units. There were 62 different words found in her response, with a type-token ratio of .48. There were eight mazes and three abandoned utterances, indicating incomplete thought. She supplied reasons to support her position but did not provide a counterargument until prompted. When prompted for a rebuttal, she changed her opinion to agree with the opposing view.

Both these excerpts are consistent with my quantitative findings that CR students talked at a higher rate, produced more mazes while pausing less within C-units, used a wider variety of words. The excerpt is also reflective of CR students being more capable of offering spontaneous arguments, counterarguments and rebuttals, whereas, even advanced Control students, such as the participant in the above excerpt struggled to produce these more complex argument elements.

Table 13 shows the correlations among language measures coded from the oral transfer task. The measures were generally correlated with one another. The four measures of *argument quality* – spontaneous counterargument, prompted counterargument, spontaneous rebuttal and prompted rebuttal – are not included as they were binary outcome measures. Table 14 displays the correlations between students' pretest measures and the 14 oral outcome measures, which represent six language categories: length of oral response, syntactical complexity, vocabulary diversity, fluency, mazes, omissions and errors. The table shows that of the four pretest measures

only students' initial reading fluency (IRF) scores were generally correlated with the oral outcome measures, *ps* < .05, with the exception of words per minute, between- and within utterance pauses.

Differentiated Intervention Effects on Oral Outcome Measures with Students of Varying Initial English Proficiency (IRF)

Hierarchical regression analyses were conducted in which Initial English Proficiency, as represented by the IRF pretest, was entered first, followed by the contrast CR vs. Control, then the interaction was entered last. Table 15 displays the results of the hierarchical regression analyses.

Essay Length. Significant interactions were found between the CR vs. Control contrast for both number of C-units and number of words produced, *p*s = .00. There was also a significant interaction between initial English proficiency and the CR vs. Control contrast for number of words, $p = .00$, but no significant interaction was found for number of C-units, $p = .11$. *Figure 9* shows that students with varying initial English proficiency gained equally from CR discussions on number of C-unit production. As shown in *Figure 10*, students with higher levels of initial English proficiency benefitted more from CR discussions in terms of number of spoken words produced than did the students with lower levels of initial English proficiency.

Syntactical Complexity. No significant interactions were found for initial English proficiency and the CR vs. Control contrast in terms of mean length utterance and subordination index, *ps* > .05. The CR vs. Control contrasts for both measures however, were consistent with previous OLS regression analyses in which mean length utterance was found statistically significant, $p = .00$ but subordination index was not, $p > .05$. *Figure 11* shows that students with

varying levels of initial English proficiency gained equally from CR discussions on mean length utterance. *Figure 12* shows no significant gains from CR discussions were made between CR students with varying levels of initial English proficiency in terms of subordination index as their performance were comparable to students in the Control group.

Vocabulary Diversity. The significant interactions between CR vs. Control contrast were consistent with previous Poisson and OLS regression analyses for number of different words and type token ratio, *ps* = .00. There were also significant interactions between initial English proficiency and the CR vs. Control contrast for both measures, *ps* = .00. Students with higher levels of initial English proficiency benefitted significantly from CR discussions as their English lexicon widens. These findings are depicted in *Figures 13* and *14*.

Fluency. The CR vs. Control contrast for the measure of time length was consistent with previous OLS regression analysis, $p = .00$. A significant interaction between initial English proficiency and the CR vs. Control contrast was also observed, $p = .02$. *Figure 15* shows that students with lower initial English proficiency made greater fluency gains from participating in CR discussions than did students with high initial English proficiency.

Mazes. No significant interaction was found between initial English proficiency and the CR vs. Control contrast, $p = .38$ but the CR vs. Control contrast was consistent with previous Poisson regression analysis in which a statistically significant difference was observed, $p = .00$. *Figure 16* shows that students who had higher levels of initial English proficiency produced more mazes in their oral responses than did students of comparable proficiency levels in the Control group.

Omission and Errors. The CR vs. Control contrasts for omitted words, omitted bound morphemes, and word errors were consistent with previous Poisson regression analyses, *ps* < .01.

However, a significant interaction between initial English proficiency and CR vs. Control contrast was observed only for the word error measure, $p = .00$. In general, students with higher levels of initial English proficiency produced fewer word errors than students of lower proficiency levels. However, *Figure 17* shows that CR students with lower levels of initial English proficiency made significantly fewer word-level errors than did Control group students of comparable level of initial English proficiency ($\beta = -.56$). No significant trends toward an interaction between initial English proficiency and the CR vs. Control contrast were found for omitted words and omitted bound morphemes, ps > .05 but *Figures 18* and *19* both indicate that students with lower levels of initial English proficiency tended to omit more words and bound morphemes than students with higher levels of English proficiency.

Intervention Effects on Interest towards English Discussions

Students' responses on the five-point Likert items assessing attitudes toward English discussions are listed in Table 16. The ten items in the survey represent three aspects of motivation: students' overall attitude towards discussions, their self-perceived level of engagement in the discussions, and the benefits they perceive from participating in discussions. CR students were asked to base their answers on their experience with CR discussions whereas Control group students were to base their answers on the discussion they had during regular English lessons. As can be seen from the item means presented in Table 16, CR students reported higher levels of L2 motivation and engagement than did Control group students. They also reported higher perceived benefits as a result of participating in CR discussions as compared to regular discussions in English class.

Using all pretest measures and gender as covariates, ANCOVA analysis shows an overall significant intervention effect on motivation, F (1, 424) = 346.71, p = .00; η_p^2 = .88. The CR condition significantly exceeded the Control condition on all ten items. Thus, students were more motivated and engaged in CR discussions than regular discussions and perceived more benefits from CR discussions than regular discussions. None of the other covariates predicted the outcome, *ps* > .05. There was no significant difference between male and female students, p = .50, and no interaction between gender and experimental condition were present, p = .74. This lack of interaction indicates that the effect of CR discussions on motivation outcomes is independent of students' gender.

I employed a thematic analysis (Aronson, 1994) to analyze responses to the open-ended motivation questions. I read through the responses and summarized the main themes as well as pulled direct quotes indicative of these themes. Two overarching themes emerged from the responses regarding the features students liked about CR discussions: cognitive benefits and socio-emotional benefits.

Cognitive Benefits. One of the themes that emerged strongly in the responses was students' belief that CR discussions have cognitive benefits. These benefits fell into three sub-categories: L2 language development, development of higher order thinking skills, and consideration of multiple perspectives.

The majority of CR students talked about cognitive benefits gained from participating in CR discussions. They claimed to experience improved oral English, vocabulary, and listening skills. Examples of student responses are as follow:

> "I didn't know I can speak in English and be understood, even though it's broken English".

> "We actually get to talk real English, discussing something we can relate to. Sometimes our speaking lessons would be something like taking turns practicing about giving directions from a map or something. Who would want to practice that?"
>
> "I learnt a lot of new words much more through CR discussions than the word of the day we take turns to write on the corner end of the whiteboard every day."
>
> "I listen much more to my friends in CR discussions because I want them to listen to what I have to say too. I actually want them to agree with me. This is really different because I usually don't care when Teacher [teacher's name] tells us to have group discussions."

Many students identified the development of critical thinking and decision-making skills as another major benefit of CR discussions. Students described how their higher-level thinking skills have been nurtured through the opportunity to be engaged in free-flowing discussions. Some students also reported textual evidence use as a newly acquired skill as a result of the intervention. For example:

> "After engaging in [CR] discussions I think it made me feel smarter in English. I think it actually made us all smarter in English".
>
> "It was weird. When we finished talking, I totally had a new point of view".
>
> "I kept on thinking about the issues we discussed [in CR]. They sound petty at first, but after talking about them with the friends in my group, I think they're really important questions for us all to think about".
>
> "CR taught me to check my facts [textual evidence] before I actually open my mouth about something. That way, it's hard to get refuted."

Students also talked about the importance of reviewing and respecting other people's opinions when arguing. They felt that CR discussions have introduced them to the concept of "democratic solution" as opposed to just winning the argument. For example:

> "I am a member of the school debate club. CR discussions gave me a whole new perspective about arguing. Debate is about winning, but CR's not like that. It's about weighing all options before coming up with the best possible decision. There were days

> when our [CR] group settled for a decision that I wasn't favorable of. But I find it perfectly okay."
>
> "I learn to agree to disagree with my own opinion after listening to what my friends have to say."
>
> "I didn't know my friends had better thoughts until we all spoke. I always thought that only my views were correct and I used to get upset when people don't agree with me."

Socio-emotional Benefits. In terms of socio-emotional benefits of CR discussions, two sub-themes were identified: encouragement and support, and friendship.

The CR intervention for the most part led students to come prepared, that is, having read and studied the discussion material before each session. However, due to limited proficiency in English, there were students who either could not understand the stories or did not express their opinion very well during discussions. The more advanced students discovered that they could play a role in helping their struggling friends. One participant said:

> "I was not happy at first about having been assigned to different groups by random each week. There were days when I would get a bunch of classmates who don't talk much. But I somehow learnt that these people are sometimes the ones with smarter views. You just have to know how to get them to talk."

Others felt a sense of accomplishment when they could assist those in need:
> "I enjoyed helping out friends who weren't really good in English to understand the stories".

Due to the random assignment of students to CR groups every week, students were sometimes grouped with classmates who they might not feel comfortable with. Students said being in groups with these classmates enabled them to dissolve prior issues or barriers to communication and initiate new friendships. For example:

> "By the end of the CR discussions, I realized one thing - we are now all talking to each other!!"

“In our class, boys don’t actually talk to girls, and we girls don’t talk to boys. But now we’re cool. Even some of the girls who don’t usually talk to each other are now starting to be friends.”

“I never knew that a good discussion can do so much. I made new friends.”

“I always thought shy kids aren’t cool until you’re actually told to work with them [in CR discussions] and really listen to what they have to say.”

CHAPTER 4

DISCUSSION AND CONCLUSION

The major finding of this study is that engaging in language-rich Collaborative Reasoning discussions accelerates eighth grade Malaysian English language learners' reading fluency, oral English, written English, as well as their motivation to talk with others in English. Substantial improvements were found in students thinking and argumentation skills in the oral and written tasks, with particularly large effect sizes. This study extends previous research on programs featuring dialogue-based interaction in the classroom e.g. Reciprocal Teaching (Greenway, 2002), Book Club (Kong & Fitch, 2002), Questioning the Author (McKeown, & Beck, 2004), and also extends previous studies of Collaborative Reasoning (CR) specifically assessing the impact of CR discussions on second language learning (Hsu, Zhang, & Anderson, *under review*; Ma'rof & Anderson, *in preparation*; Zhang, Anderson, Nguyen-Jahiel, 2013).

Collaborative Reasoning and Reading Fluency

In this study, twelve CR discussions within a six-week time frame significantly impacted Malaysian students' L2 reading fluency. The fluency task involved judging sentences true or false so the result reflects increased facility in basic comprehension of English. The significant difference between the CR and Control conditions are consistent with my primary hypothesis that reading skills can be significantly improved when students engage in meaningful discussions about text. By having students read stories in order to participate in the discussions, Collaborative Reasoning provided students the chance to focus on and improve their fluency and comprehension further. Because they were preparing to discuss stories in small groups with

classmates, students probably read more thoroughly in order to be able to have something to say in the discussions. CR calls for students to refer to the stories to derive textual evidences to back their arguments.

Collaborative Reasoning discussions may have boosted students' speed of access to words, both because of more careful and perhaps repeated reading of the stories, and because of frequent use of key words from the stories during discussions. Berninger and Richards (2002, p. 162) explain that in order to be fluent in reading, children also need to quickly and automatically access "orthographic word forms and abstract phonological word forms in their reading lexicons" to free up working memory resources – which are usually limited among students with low proficiency or among second language learners (Zhang, Anderson & Nguyen-Jahiel, 2013). Engagement in CR discussions provides students the opportunity to work on a greater number of texts than they normally encounter, repeatedly use the words in these text, which in turn may help the development of crucial word-level skills for reading comprehension and fluency.

In addition to focused reading that promotes word learning and speeds access to words, CR discussions may have pushed the students to 'think in English' instead of translate into Bahasa Malaysia. Several students said as much when interviewed. This change in reading behavior from normally using L1 strategies to comprehend L2 text (Goh & Hashim, 2006) may have reasonably lead to the leap in reading fluency. When students engage in the intense discussions afforded by CR, the need for L1 translation will be eliminated as CR provides contextualized language learning to take place where language input is comprehensible to them through negotiation and interaction in the group discussions. The theoretical base underlying this experience is what Krashen (1988) in Vadillo (1997) describes as being engaged in 'problem-solving activities': "*The primary characteristic of these sorts of activities is that the students'*

attention is focused on finding a correct answer to a question, a problem or a situation. Language is used to present the problem and solve it .. These sorts of activities are only successful if the students find them interesting, either because they are useful in some way or simply because they are an enjoyable activity". CR discussions motivated students in such a way that they feel impelled to understand what they are talking about and then to participate orally in the discussions giving opinions, asking questions to group members while at the same time creating an atmosphere that lowers down their 'affective filter' (Krashen, 1988). These kinds of exercises foster reading fluency and activates students' linguistic knowledge through natural and spontaneous use of English (Vadillo, 1997). In other words, when students start to focus on meaning rather than on form (Nunan, 1989), reading fluency is therefore enhanced.

The explanations I have advanced for students' increased reading fluency are speculative and cannot be evaluated with the data from this study. I did not collect online measures of story reading. I did not give a vocabulary test or evaluate speed of lexical access. I did not systematically probe students about whether they were 'thinking in English.'

Collaborative Reasoning and Written Language Production

Participating in Collaborative Reasoning discussions improved Malaysian English language learner's essay writing skills. The reflective essays written by CR students were longer and had greater vocabulary diversity. Their essays about whether or not Jack should tell on his friend Thomas for cheating in a model car race were much more likely than those of Control students to back arguments with textual evidence, consider counterarguments, and respond to counterarguments with rebuttals. CR students displayed significant gains in overall written

language production, replicating the findings of previous research (Dong et al, 2008; Kim et al., 2011; Reznitskaya et al., 2001; Zhang, Anderson & Nguyen-Jahiel, 2013).

In contrast to Zhang et. al's (2013) findings, however, CR students did not differ from Control students in terms of subordination index, which is one measure of syntactical complexity. In this study, the subordination index was related to students' English proficiency in that only the more proficient students were better at producing the construct regardless of intervention condition. Nonetheless, CR students wrote the essays that had greater mean length utterance scores, which is still suggestive of greater syntactical complexity as compared to Control students.

In line with Vygotsky's (1978) notion that cognitive development results from the internalization of language in social interaction, the reflective essays written by Malaysian schoolchildren in the present study provide evidence that ways of thinking acquired during oral discussions were internalized and transferred to written argumentation. Theoretically, students develop an argument schema – an abstract structure that represents the knowledge about the components of a complete and sound argument and relationships among the components – through socialization into argumentative discourse in small-group CR discussions (Reznitskaya et al., 2008). An important feature in argument schema according to Reznitskaya et. al (2008) is abstract and therefore it enables transfer among situations. The positive transfer I observed from intense oral discussions to written argumentation is likely to happen because CR discussions and reflective essay writing task share important structural features of an argument schema, including formulating a position on an issue, providing support for one's claims, appealing to story information for evidence, considering alternatives, and reconcile opposing perspectives (Reznitskaya, Anderson, & Kuo, 2007). The students who engaged in CR, as opposed to students

who did not have the experience of CR discussions, were much more able to propose counterarguments and rebuttals which reflects a greater disposition to examine and consider alternative perspectives.

These findings are particularly significant in the Malaysian context as previous research shows that culture may provide additional difficulties for students who may have been enculturated in a setting that does not privilege critical thinking as is the case in Malaysia and other Asian countries (Koo, 2003). The current results suggest that, given appropriate context such as that afforded by CR discussions, Malaysian students are capable of grasping the concepts of argument, counterargument, and rebuttal that would have otherwise been difficult (Botley, 2014).

Experience in CR led to gains in writing for students of all levels of initial English proficiency. Low performing CR students exceeded students of comparable proficiency in the Control group on several measures of written language production. CR students with lower English proficiency were able to make gains in mean length utterance implying that they, too, were showing experiencing development in producing syntactically more complex essays. Lower proficient students were also able to make gains from CR discussions in vocabulary growth. In anticipation for CR discussions, students tend to process information from the text they expect to use during the discussions more deeply (Miller et. al., 2014, in press). Deeper processing plausibly leads to incidental vocabulary growth which is then transferred to productive written vocabulary (Sun, Zhang, & Scardamalia, 2010).

In regard to written argumentation and reasoning, the findings show that CR students with higher initial levels of English proficiency gained more from the CR discussions, whereas lower students did not benefit as much. Students with lower levels of initial English proficiency

may have difficulty in constructing clear arguments because offering counterarguments and rebuttals requires a good grasp of the target grammar and vocabulary which they may still be lacking.

Nonetheless, the general conclusion that can be made here is that engaging students in meaningful dialogic interaction promoted Malaysian schoolchildren's capability in argumentation and reasoning. They were able to transfer what they learned during oral argumentation in their second language to constructing written arguments in their second language.

Collaborative Reasoning and Oral Language Production

The current findings show that CR accelerates Malaysian schoolchildren's oral language production as reflected by their performance on the whale transfer task. Consistent with the findings on the reflective essay task, Collaborative Reasoning discussions also enhanced Malaysian ELL's speaking skills in terms of the higher lexical diversity and syntactically more complex responses produced by the CR students than that by Control students in the individual oral task in which they had to take a position on whether or not people should be allowed to hunt whales.

In about the same amount of time, CR students spoke more fluently than Control students as evidenced by the greater number of words produced per minute and the fewer between- and within-utterance pauses, which further supports the findings of Hsu, Zhang, & Anderson (*under review*) and Ma'rof & Anderson, (*in preparation*) that rate of talk increases appreciably among CR students. Although they tended to omit words and bound morphemes as they spoke, CR students produced significantly fewer word errors in their responses.

Initial level of English proficiency emerged as a significant predictor of the majority of oral language outcomes. Furthermore, significant interactions indicated that students who were more advanced in English benefited more from CR than less advanced students in terms of fluency, number of words, and the variety of words they used to talk about the whaling issue. This may indicate that there is a threshold of second language competence required before a student can get full benefit from collaborative discussions or may indicate that a longer intervention would be required to produce maximum benefit for students with low initial proficiency. However, the more advanced CR students in the present study produced relatively more mazes (disfluencies) – that including filled pauses, false starts, repetitions, and reformulations. Though this may seem like a negative outcome, disfluencies are normal when people try to express complicated ideas, especially in their second language, and can be regarded as positive in that students were giving priority to substance over form.

One of the most important findings is the superior quality of the arguments produced by CR students. Students who participated in CR were more able to spontaneously produce counterarguments and spontaneously consider rebuttals as compared to students in Control classes, which conforms to my findings on written argumentation. The fact that effects on argument quality were found in both the oral and written tasks, on topics that the students had not previous read about or discussed, documents the powerful effect CR has in providing Malaysian English language learners a platform to learn to think and reason. These abilities may be poorly developed in Malaysian students because of the general lack of opportunity to think independently or freely express complex ideas in Malaysian classroom, especially foreign language classrooms.

Collaborative Reasoning and Interest towards English discussions

My findings show that Collaborative Reasoning substantially improved Malaysian students' liking for English discussions, engagement in English discussions, and the value they saw in discussions in English as reflected by the much higher ratings reported by the CR students than the Control students in the discussion interest survey. The influence of CR on students' motivation and engagement did not depend on levels of initial English proficiency. In other words, CR discussions increased motivation and engagement equally among students with varying levels of initial English proficiency.

The high valuation of Collaborative Reasoning may arise for one or more of several reasons. CR promotes construction of meaning and critical thinking and encourages ownership and justification of ideas (Wu et al., 2013), which Malaysian students are typically do not have in their regular language classrooms. The heightened interest towards discussions among CR students can also be explained by student gratification from peer collaboration in CR where students gain self-confidence through interaction with peers which in turn promotes their interest and engagement during discussions (Wu et al., 2013). Another viable explanation is that the socio-cognitive conflicts that usually emerge in CR discussions create cognitive dissonance which is exciting even for low-proficient students. Previous studies (Zhang, Anderson, & Nguyen-Jahiel, 2013; Ma'rof & Anderson (*in preparation*) have also found that Collaborative Reasoning is perceived by children who are second language learners as significantly better than conventional discussions in helping them read and think.

In the open-ended reflections, students reported several benefits that they gained from CR discussions. They felt the intervention had improved cognitive functions as well as having socio-emotional benefits. With regard to cognitive functions, students reported big improvements in

language, higher-order thinking skills, and learning to consider multiple opinions. In terms of socio-emotional benefits, students said they acquired competence in encouraging and supporting their friends and in the process, acquired new friends. Even comments about the features they disliked indicated a positive evaluation of CR, as some students mentioned that they were skeptical about the continuation of CR by their teachers once the research project was over. Some students reported being apprehensive during CR when they did not have a position to defend at the start of the discussion.

Control students on the other hand said the English discussions provided them a means to "practice some English" and ultimately, to get their individual assignments done. In regard to what they disliked about their regular English discussions, interestingly, there was a consistent pattern in Control students' responses that most teachers gave mixed messages, telling their students to engage in group discussions based on a given task, but at the same time insisting that students keep their noise level down and this according to a student, "*made us not want to talk*." Another major reason for not wanting to fully participate in regular discussions was described as lack of respect for one another. Ideas get rejected, disagreements sometimes turn personal, and people feel rejected. Based on their responses, Control students reported being very conscious about making mistakes, so they tended to "just keep quiet" in discussions. Students' comments indicated a general lack of motivation towards regular discussions which led to the lack of cooperation among group members as many have reported that their friends "don't want to hear (their) opinions and ideas anyway".

Limitations

Due to the quasi-experiment design of this study which poses a great challenge in recruiting a sample size representative of all Malaysian secondary schoolchildren, the findings reported here can only be regarded as suggestive rather than definitive to have an impact on all Malaysian secondary school students in general. Although the performance of CR students in this study were relatively comparable to the performance of CR participants in the studies of J. Zhang et. al (2013) and Hsu, Zhang, & Anderson (*under review*) regardless of the differences in context and age groups, students enrolled in this study can be regarded as "advanced" students by general Malaysian standards, because, the recruited school was located in a semi-urban area of Selangor, Malaysia which is the most developed state in the country that houses both the Malaysian federal territories of Kuala Lumpur and Putrajaya. Students in this study also came from socioeconomic backgrounds above the national average, and the three schools were generally good-performing schools although of public status, indicating that participants of this study are representative of the more privileged group of students. Collaborative Reasoning may yield different effects if carried out with students from the more rural areas and from more disadvantageous backgrounds.

The results of this study clearly showed that there were cognitive and affective effects of participating in CR discussions. What is less clear is how the discussions have impacted students' literacy performance. I also did not attempt to disentangle the possible effects and dependencies on the individual and group levels. This can be addressed in my future studies by analyzing the discussion sessions microgenetically to assess moment-by-moment learning and by employing multilevel analyses to handle nested designs given a larger sample size. Though the sample size of N=430 is large even by standards of previous CR studies carried out over the past

two decades, this figure was still not enough for me to account variances that may exist across classrooms and schools.

Another limitation that I must acknowledge in the present study is the lack of systematic knowledge of baseline teaching in the classrooms involved. Therefore, I could not account for the possibly differing socio-emotional climates in the twelve classrooms of this study. Also, I could not control for organizational efficacy of the teachers and their personal dispositions. That is, some of the classes would have a more positive classroom climate with an English teacher who has a more positive disposition than one who whose class management style involves nagging and scolding. The different climates may have affected the way students perform. I also cannot account for efficient use of the allocated time i.e. if teachers spent a lot of time off topic, and the clarity of procedures and content explanation to the students. In terms of assessment issues, while the reading fluency test emerged as a strong predictor in representing students' initial levels of initial English proficiency, it does not cover all aspects of reading and my future studies should include vocabulary and comprehension assessments to establish more comprehensive baseline measures to represent reading.

From my observation in this study and previous research, it is clear that not all peer-peer relationships are the same. Certain collaborative relationships are much more conducive to establishing effective dialogic support than others (Storch, 2002) and it is not always possible to determine appropriate groupings. Therefore, another question is whether students with differing personalities would benefit equally from Collaborative Reasoning discussions. It would be interesting to further investigate the potential impact CR discussions may have on shy students.

This study also did not include contextual influences in the analysis – which according to sociocultural theory, plays a crucial role in learning. Variations in terms of the content of

discussion, social demands for participation, and quantity and quality of verbal functions across phases— within the same discussion session, with the same participants, and in the same setting— are indicative of the complex nature of second language acquisition. Future research therefore ought to consider a method to determine impact of the dialogic setting context on the interaction processes and on knowledge co-construction. Subsequently, future research should incorporate contextual influences in the analysis of dialogic knowledge co-construction.

Conclusion

The present findings highlight the importance of meaningful extended talk in developing Malaysian L2 learners' language and literacy skills in English. CR discussions over a 6-week time frame were shown to boost students' reading fluency and improve their overall oral and written language production. Considering the short duration of the intervention, the size of the effects obtained in reading, writing, and speaking are very large. Moreover, CR heightened students' motivation and interest towards discussions in English.

My findings strengthen the argument that teaching approaches that tap into higher-level thinking positively impacts student performance on a variety of levels. The findings of this study provide good reason to believe Collaborative Reasoning discussions can help bridge a serious gap in the education of Malaysian students, providing them opportunities elsewhere limited in the nation's schools to use the English for extended meaningful communication and critical thinking. In CR, students gained the opportunity to engage in more extended forms of discourse by explaining, supporting, justifying their positions as well as connecting to the contributions of other students. More importantly, the outcomes of CR in this study show that effective dialogic-based instruction engages students and builds community of learners.

This study has situated second language peer interaction in the context of collaborative learning and suggests that appropriately monitored peer discussions about text not only assist literacy development but they also facilitate gains in affect and motivation. Collaborative Reasoning discussions seem to create synergy by stimulating intellectual growth and personal engagement, and an exceedingly important aspect among school-age children, but often overlooked by teachers and policy-makers, its socially-involving nature creates an exciting setting for social interactions to take place on a different plane, initiating new friendships among students and reducing awkwardness between genders, remarkable in a socially-conservative society like Malaysia. In other words, this study substantiates the efficacy of CR in developing language, conversation skills, thinking skills, motivation and interest, and, it seems perhaps, social understanding.

Implications

Several educational implications can be drawn from the current study. First, if students are to put their newly learned language to use, they will need ample practice in turn-taking, active listening, formulating what they have to say in a way appropriate for the moment. Talk and interaction – for both mainstream and language-minority students – are of prime importance for working towards understandings of new concepts and as a basis for learning through the other language modes of reading and writing. The findings from the present investigation strongly support the sociocognitive view offered by Vygotsky (1978) who argues that actively interacting with peers especially with those who are more able will result in optimal learning. Opportunities for meaningful and exciting classroom interaction is associated with higher student attainment in second language literacy skills – as has been reflected by the findings of this

present study – and where the goal of listening, speaking, reading, and writing for authentic communication and self-expression is met in CR discussions (J. Zhang, Anderson, & Nguyen-Jahiel, 2013). Through the reading of stories, and talking and listening to each other about issues in the stories, CR discussions entail Malaysian English language learners to increase their control over their use of social interaction, learning, and thinking in the L2.

For optimal oral language development, according Bauer and Manyak (2008), classrooms should be rich in language that is comprehensible, relevant and interesting. However, inconsistent funding has always been one of the major challenges in explaining why the majority of well-meaning interventions do not last in classrooms. In this respect, employing a more practical approach like CR would be feasible with higher chances of sustainment since CR does not require hefty sums of money to be conducted. In classrooms where resources are limited, the stories could be shared and read together and can be recycled across classrooms over time. The unpredictable nature of the stories selected to be used in CR discussions are deeply meaningful and engaging than contrived texts written for school. Anderson (1998) maintains that highest performing students can make much headway in reading when "they are supposed to learn from unpredictable texts" (p. 6).

The path toward creating a future filled with opportunity and choice for Malaysian children is paved with the ability to think and talk with others in purposeful ways as means of generating ideas and constructing understanding. In Malaysia, clearly, the children's ability with English language affects every aspect of their academic lives and beyond. Most notably, those with a richly developed English language system are better able to think in complex ways, understand complex ideas, and give voice to their thinking. In addition, a well-developed ability with language, especially in English, enables more thought-provoking, meaningful

discussions. When Malaysian children learn inside a constructivist curriculum that draws on dialogic interaction as a tool such as that offered by Collaborative Reasoning, they are constantly challenged to think and give voice to their thinking as they negotiate and construct meaning. It is this process of negotiating and constructing meaning that pushes children to work at the cutting edge. I am confident that making Collaborative Reasoning practical in Malaysian classrooms is possible, although difficult to convince teachers to adopt because of the exam-oriented syllabus. But in today's world, effective communicative language teaching approaches in English might just be the necessary evil. On the larger picture, teaching ways for students to comprehend L2 text through collaborative discussions simultaneously teaches for civil society in that students learn to interact productively and to understand themselves and one another in new ways – ways that will lead to a peaceable classroom, and perhaps, a more democratic Malaysian society.

CHAPTER 5

FIGURES AND TABLES

Table 1. Causes of limited English proficiency among Malaysian learners

English is viewed as a difficult subject to learn.
Learners depend on the English teachers as authorities.
English is used only to answer teacher's questions and spoken during English class.
Learners tend to depend heavily on translation and dictionary use to find meanings.
There is a lack of support to use English in the home environment and the community.
Learners are found to have limited vocabulary as English reading materials are not always available.
Learners display unwillingness and lack of motivation to learn English as they do not see the immediate need to use the language.
Learners have inadequate or insufficient exposure to the language as there is a limited opportunity to use English outside the classrooms.
English is not perceived as an important medium for communication as they use Bahasa Malaysia both for academic and personal interactions.
Learners express unwillingness and high anxiety to use English to communicate despite acknowledging that English is important for their future.
There is a mismatch between policy and practice in the Malaysian ELT curriculum; the policy as envisaged in the school curriculum cannot be fully implemented in schools because of the over-riding concern for examination.

Obtained from Che Musa, Koo, and Azman (2012, pg. 42). Source: Abdul Aziz (2007), Abu Hasan (2008); Abdul Rahman (2005); Ali (2008); Ambigapathy (2002; 2006); Hassan & Selamat (2002), Ismail (2008); Kaur (2006).

Table 2. Mean (SDs) of Students' Performance on Pretest Measures.

Pretests	IRF	IIT	IILA	NFC
CR (N = 206)	135.01(*30.77*)	2.51(.40)	2.99(*.52*)	35.50(*5.34*)
Control (N = 224)	129.31(*33.98*)	2.48 (.42)	3.04(*.51*)	35.17(*4.30*)

Table 3. Means (SDs) of Students' Performance on Reading Fluency Posttest.

CR (N=206)	Control (N=224)
165.05(29.67)	138.29(31.39)

Table 4. Correlations between Reading Fluency Posttest and Pretest Measures

Measure	Reading fluency
IRF	.06
IIT	.08
IILA	.13**
NFC	.03

Note. IRF – Initial Reading Fluency, IIT – Initial Interest in L2 Talk, IILA – Initial Interest in L2 Literacy Activities, NFC – Need for Cognition. ** $p < .01$.

Table 5. Means (SDs) of Students' Performance on Written Language Production. *

	CR (N=206)	Control (N=224)
Length		
Total number of C-units	15.39(2.6)	10.67(2.65)
Total Number of Words	148.63(26.23)	101.19(22.99)
Syntactical Complexity		
MLU	14.08(1.28)	13.17(2.07)
SI	2.06(.53)	1.98(.59)
Vocabulary Diversity		
Total number of different words	76.95(11.95)	50.29(17.26)
Type Token Ratio	.52(.03)	.48(.07)
Argument Quality		
Number of Reasons	10.56(1.61)	5.27(1.23)
Number of Counterarguments	1.14(.69)	.38(.49)
Number of Rebuttals	.59(.49)	.20(.40)
Number of Evidences from Text	.52(.50)	.12(.33)

*All outcomes significant at $p < .001$ except for Subordination Index, SI, $p = .14$.

Table 6. ANCOVA, Poisson and OLS Follow-up Analyses on the written language measures.

Analysis of Covariance of Rate Variables for the Written Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition F Value	Condition P Value	IRF F Value	IRF P Value	IIT F Value	IIT P Value	IILA F Value	IILA P Value	NFC F Value	NFC P Value	Partial Eta Squared
Number of C Units	658.46	.00	516.87	.00	.12	.73	2.43	.12	.17	.68	.61
Poisson Regression Results of Count Variables for the Written Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition (1) Wald Chi Square	Condition (1) P Value	IRF Wald Chi Square	IRF P Value	IIT Wald Chi Square	IIT P Value	IILA Wald Chi Square	IILA P Value	NFC Wald Chi Square	NFC P Value	Glass Delta
Number of words	1675.35	.00	1014.69	.00	.01	.76	7.56	.01	.22	.64	2.06
Number of different words	1030.35	.00	691.03	.00	.77	.38	3.92	.04	.01	.93	1.54
Reasons	347.24	.00	30.22	.00	.26	.61	.11	.74	.24	.62	4.30
Counterarguments	65.09	.00	61.08	.00	.48	.49	.06	.81	.40	.53	1.55
Rebuttals	33.88	.00	42.10	.00	.03	.87	.56	.46	2.05	.15	.97
Use of Textual Evidence	41.38	.00	25.43	.00	.32	.57	1.36	.24	.01	.92	1.21
Ordinary Least Square Results of Rate Variables for the Written Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition B Value	Condition P Value	IRF B Value	IRF P Value	IIT B Value	IIT P Value	IILA B Value	IILA P Value	NFC B Value	NFC P Value	Glass Delta
SI	-.004	.86	.86	.00	-.01	.72	-.04	.17	-.02	.37	.15
Mean Length Utterance	.19	.00	.62	.00	.05	.18	-.06	.16	.08	.04	.44
Type Token Ratio	.28	.00	.27	.00	.08	.08	-.006	.91	.00	.99	.57

Table 7. Correlations between Written Language Outcome measures.

Measures	2	3	4	5	6	7	8	9	10
1. Number of C-units	.99	.76	.69	.96	.47	.79	.70	.54	.52
2. Number of words	-	.72	.64	.96	.45	.80	.71	.53	.52
3. MLU		-	.72	.76	.54	.44	.44	.36	.32
4. SI			-	.64	.32	.35	.56	.47	.37
5. Type Token Ratio				-	.67	.77	.66	.52	.51
6. Number of different words					-	.34	.22	.26	.25
7. Reasons						-	.74	.66	.53
8. Counterarguments							-	.63	.54
9. Rebuttals								-	.40
10. Evidence									-

Note. All correlations significant at the $p < .01$ level.

Table 8. Correlations between Pretest Measures and Written Language Outcome Measures.

	Written Language Outcome Measures									
Measures	NCU	NW	MLU	SI	NDW	TTR	RSN	CARG	RBTL	EVD
IRF	.61**	.57**	.63**	.87**	.56**	.28**	.28**	.51**	.44**	.33**
IIT	-.07	-.07	-.03	-.13**	-.04	0.6	.06	-.01	-.03	-.02
IILA	-.14**	-.14**	-.11**	-.15**	-.13**	-.02	-.02	-.01	-.04	-.12*
NFC	-.02	-.03	.05	-.07	-.02	.01	.01	-.07	-.11*	-.04

Note. IRF – Initial Reading Fluency, IIT – Initial interest in L2 Talk, IILA – Initial interest in L2 activities, NFC – Need for Cognition, NCU – Number of C-units, NW – Number of words, MLU – Mean Length Utterance, SI – Subordination Index, NDW – Number of different words, TTR – Type Token Ratio, RSN – Reason, CARG – Counterargument, RBTL – Rebuttal, EVD – Evidence. * $p < .05$, ** $p < .01$.

Table 9. Hierarchical regression on the ten writing outcome measures based on initial English proficiency (IRF).

Steps	Measures	R^2 Change	β	Sig
	Essay Length: NCU			
Step 1	Initial English Proficiency	.37	.61	.00
Step 2	Contrast (CR vs. Control)	.38	.62	.00
Step 3	Initial English Proficiency x Contrast	.00	-.02	.87
	Essay Length: NW			
Step 1	Initial English Proficiency	.32	.57	.00
Step 2	Contrast (CR vs. Control)	.42	.65	.00
Step 3	Initial English Proficiency x Contrast	.00	.19	.08
	Syntactical Complexity: MLU			
Step 1	Initial English Proficiency	.39	.63	.00
Step 2	Contrast (CR vs. Control)	.04	.20	.00
Step 3	Initial English Proficiency x Contrast	.03	-.82	.00
	Syntactical Complexity: SI			
Step 1	Initial English Proficiency	.75	.87	.00
Step 2	Contrast (CR vs. Control)	.00	-.01	.31
Step 3	Initial English Proficiency x Contrast	.00	-.12	.28
	Vocabulary Diversity: NDW			
Step 1	Initial English Proficiency	.32	.56	.00
Step 2	Contrast (CR vs. Control)	.38	.62	.00
Step 3	Initial English Proficiency x Contrast	.00	-.21	.07
	Vocabulary Diversity: TTR			
Step 1	Initial English Proficiency	.08	.28	.00
Step 2	Contrast (CR vs. Control)	.08	.28	.00
Step 3	Initial English Proficiency x Contrast	.07	-1.19	.00
	Argument Quality: RSN			
Step 1	Initial English Proficiency	.10	.32	.00
Step 2	Contrast (CR vs. Control)	.73	.86	.00
Step 3	Initial English Proficiency x Contrast	.00	.00	.97

Table 9 (cont.)

Steps	Measures	R^2 Change	β	Sig
	Argument Quality: CARG			
Step 1	Initial English Proficiency	.25	.51	.00
Step 2	Contrast (CR vs. Control)	.24	.49	.02
Step 3	Initial English Proficiency x Contrast	.04	.87	.00
	Argument Quality: RBTL			
Step 1	Initial English Proficiency	.19	.43	.00
Step 2	Contrast (CR vs. Control)	.13	.37	.00
Step 3	Initial English Proficiency x Contrast	.01	.30	.09
	Argument Quality: EVD			
Step 1	Initial English Proficiency	.11	.33	.00
Step 2	Contrast (CR vs. Control)	.16	.40	.17
Step 3	Initial English Proficiency x Contrast	.00	.18	.33

Table 10. Means (SDs) of Students' Performance on Oral Language Production.

	CR (N=206)	Control (N=224)
Length		
Total number of C-units	14.10(1.22)	10.95(1.48)
Total Number of Words	152.63(12.13)	112.75(4.30)
Syntactical Complexity		
MLU	3.02(.54)	1.98(.59)
SI	1.39(.49)	1.43(.50)
Vocabulary Diversity		
Total number of different words	55.17(11.19)	39.30(3.70)
Type Token Ratio	.36(.05)	.35(.03)
Fluency		
Time length in minutes	2.73(.23)	2.46(.26)
Total words per minute	56.26(5.68)	46.30(4.01)
Between-utterance pauses	.86(.67)	2.33(.52)
Within-utterance pauses	4.12(.76)	9.54(1.32)
Mazes		
Number of mazes	20.99(1.48)	17.35(1.98)
Errors and Omissions		
Omitted Words	.75(.43)	.48(.50)
Omitted Bound Morphemes	2.19(.78)	1.84(.59)
Word Errors	3.32(.64)	4.25(.82)
Argument Quality		
Spontaneous Counterargument	.49(.50)	.18(.38)
Prompted Counterargument	.91(.28)	.89(.31)
Spontaneous Rebuttal	.35(.48)	.11(.31)
Prompted Rebuttal	.71(.46)	.37(.48)

Table 11. Poisson, OLS, and binary logistic regression analyses for all the oral language measures.

Poisson Regression Results of Count Variables for the Oral Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition (1) Wald Chi Square	Condition (1) P Value	IRF Wald Chi Square	IRF P Value	IIT Wald Chi Square	IIT P Value	IILA Wald Chi Square	IILA P Value	NFC Wald Chi Square	NFC P Value	Glass Delta
Number of C-units	75.35	.00	34.00	.00	.01	.91	.04	.84	.13	.72	2.13
Number of words	1213.24	.00	81.04	.00	.87	.35	.41	.52	.18	.68	9.27
Number of different words	529.73	.00	91.19	.00	4.85	.03	.19	.66	1.91	.17	4.29
Between-utterance pauses	131.76	.00	.22	.64	.21	.65	.04	.84	1.18	.28	-2.83
Within-utterance pauses	426.25	.00	.63	.43	.47	.50	.09	.77	.06	.80	-4.11
Mazes	81.23	.00	28.45	.00	.02	.89	.13	.72	.38	.54	1.84
Omitted Words	15.94	.00	17.17	.00	.74	.39	.54	.46	.02	.89	.54
Omitted Bound Morphemes	8.89	.00	23.84	.00	.18	.67	.00	.95	.02	.89	.59
Word Errors	20.74	.00	20.38	.00	.09	.76	.00	.94	.82	.37	-1.13
Ordinary Least Square Results of Rate Variables for the Oral Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition B Value	Condition P Value	IRF B Value	IRF P Value	IIT B Value	IIT P Value	IILA B Value	IILA P Value	NFC B Value	NFC P Value	Glass Delta
MLU	.63	.00	.62	.00	-.01	.70	-.01	.71	-.01	.70	1.76
SI	-.08	.06	.52	.00	-.04	.35	.05	.32	-.09	.03	-.08
Type Token Ratio	.10	.03	.19	.00	-.10	.05	.00	.97	-.08	.11	.03
Time Length	.44	.00	.48	.00	.05	.23	-.02	.63	-.02	.62	1.04
Words per minute	.72	.00	-.01	.72	-.05	.17	-.01	.84	-.04	.23	2.48

Table 11 (cont.)

Logistic Regression Results of Binary Variables for the Oral Language Outcomes p < .05 p < .01 p < .001											
Variable	Condition (1) Wald Chi Square	Condition (1) P Value	IRF Wald Chi Square	IRF P Value	IIT Wald Chi Square	IIT P Value	IILA Wald Chi Square	IILA P Value	NFC Wald Chi Square	NFC P Value	Glass Delta
Spontaneous Counterargument	44.09	.00	77.98	.00	.93	.34	4.05	.04	8.65	.00	.08
Prompted Counterargument	.21	.65	46.94	.00	.01	.91	1.23	.27	.01	.92	.06
Spontaneous Rebuttal	33.42	.00	54.03	.00	.15	.70	4.12	.04	2.93	.09	.77
Prompted Rebuttal	45.92	.00	26.03	.00	2.03	.15	.88	.35	.52	.47	.71

Table 12. Percent of Students with Argument Elements

	CR (N=206)	Control (N=224)
Spontaneous Counterargument	71.4%	28.6%
Prompted counterargument	48.5%	51.5%
Spontaneous Rebuttal	75.3%	24.7%
Prompted Rebuttal	64.0%	36.0%

Table 13. Correlations between all oral outcome measures.

p < .05, *p* < .01, *p* < .001

Measures	2	3	4	5	6	7	8	9	10	11	12	13	14
1. NCU	.84	.90	.29	.70	.20	.66	.54	-.57	-.69	.29	.03	-.11	-.72
2. NW	-	.81	.13	.89	.35	.59	.76	-.75	-.86	-.52	.15	.07	-.63
3. MLU		-	.38	.70	.23	.72	.47	-.51	-.60	.11	-.09	-.24	-.78
4. SI			-	.20	.17	.29	-.03	.07	.05	-.28	-.22	-.37	-.32
5. NDW				-	.74	.50	.71	-.62	-.68	.33	.08	-.06	-.53
6. TTR					-	.15	.35	-20	-.16	-.04	-.03	-.17	-.15
7. TL						-	.03	-.19	-.32	.03	-.05	-.14	-.58
8. WPM							-	-.83	-.81	.53	.17	.14	-.38
9. BUP								-	.86	-.58	-.20	-.18	.43
10. WUP									-	-.69	-.27	-.27	.47
11. MZE										-	.43	.50	-.03
12. OW											-	.42	.13
13. OBM												-	.27
14. WE													-

Note. Number of C-units, NW – Number of words, MLU – Mean Length Utterance, SI – Subordination Index, NDW – Number of different words, TTR – Type Token Ratio, TL – Time Length, WPM – Words Per Minute, BUP – Between-utterance Pauses, WUP – Within-utterance Pauses, MZE – Mazes, OW – Omitted words, OBM – Omitted Bound Morphemes, WE – Word Errors.

Table 14. Correlations between pretest measures and all oral outcome measures.

p < .05, *p < .01*, *p < .001*

	Oral Language Outcome Measures													
Measures	NCU	NW	MLU	SI	NDW	TTR	TL	WPM	BUP	WUP	MZE	OW	OBM	WE
IRF	.55	.31	.67	.51	.35	.22	.51	.06	-.04	-.05	-.39	-.29	-.46	-.55
IIT	-.04	-.03	-.07	-.10	-.09	-.13	-.01	-.03	.01	.00	.12	.01	.12	.09
IILA	-.08	-.10	-.12	-.05	-.11	-.08	-.08	-.06	.06	.06	.07	.06	.07	.10
NFC	-.03	-.00	-.02	-.11	-.05	-.09	-.02	-.02	.04	-.04	.11	.04	.05	.09

Note. IRF – Initial Reading Fluency, IIT – Initial interest in L2 Talk, IILA – Initial interest in L2 activities, NFC – Need for Cognition, NCU – Number of C-units, NW – Number of words, MLU – Mean Length Utterance, SI – Subordination Index, NDW – Number of different words, TTR – Type Token Ratio, TL – Time Length, WPM – Words Per Minute, BUP – Between-utterance Pauses, WUP – Within-utterance Pauses, MZE – Mazes, OW – Omitted words, OBM – Omitted Bound Morphemes, WE – Word Errors.

Table 15. Hierarchical regression on the ten writing outcome measures based on initial English proficiency (IRF).

Steps	Measures	R^2 Change	β	Sig
	Essay Length: NCU			
Step 1	Initial English Proficiency	.30	.55	.00
Step 2	Contrast (CR vs. Control)	.51	.71	.00
Step 3	Initial English Proficiency x Contrast	.00	-.15	.11
	Essay Length: NW			
Step 1	Initial English Proficiency	.01	.31	.00
Step 2	Contrast (CR vs. Control)	.79	.89	.00
Step 3	Initial English Proficiency x Contrast	.01	.42	.00
	Syntactical Complexity: MLU			
Step 1	Initial English Proficiency	.45	.67	.00
Step 2	Contrast (CR vs. Control)	.39	.62	.00
Step 3	Initial English Proficiency x Contrast	.00	-.16	.06
	Syntactical Complexity: SI			
Step 1	Initial English Proficiency	.26	.51	.00
Step 2	Contrast (CR vs. Control)	.01	-.09	.49
Step 3	Initial English Proficiency x Contrast	.00	.04	.84
	Vocabulary Diversity: NDW			
Step 1	Initial English Proficiency	.12	.35	.00
Step 2	Contrast (CR vs. Control)	.45	.67	.00
Step 3	Initial English Proficiency x Contrast	.10	1.39	.00
	Vocabulary Diversity: TTR			
Step 1	Initial English Proficiency	.05	.22	.00
Step 2	Contrast (CR vs. Control)	.01	.09	.00
Step 3	Initial English Proficiency x Contrast	.23	2.12	.00

Table 15 (cont.)

	Fluency: TL			
Step 1	Initial English Proficiency	.26	.51	.00
Step 2	Contrast (CR vs. Control)	.19	.22	.00
Step 3	Initial English Proficiency x Contrast	.01	-.37	.02
	Mazes: MZE			
Step 1	Initial English Proficiency	.25	-.39	.00
Step 2	Contrast (CR vs. Control)	.57	.76	.00
Step 3	Initial English Proficiency x Contrast	.00	.10	.38
	Omission and Errors: OM			
Step 1	Initial English Proficiency	.09	-.29	.00
Step 2	Contrast (CR vs. Control)	.09	.31	.00
Step 3	Initial English Proficiency x Contrast	.00	.01	.97
	Omission and Errors: OBM			
Step 1	Initial English Proficiency	.21	-.46	.00
Step 2	Contrast (CR vs. Control)	.08	.29	.00
Step 3	Initial English Proficiency x Contrast	.00	-.27	.13
	Omission and Errors: WE			
Step 1	Initial English Proficiency	.30	-.56	.00
Step 2	Contrast (CR vs. Control)	.24	-.49	.00
Step 3	Initial English Proficiency x Contrast	.02	.56	.00

Note. Number of C-units, NW – Number of words, MLU – Mean Length Utterance, SI – Subordination Index, NDW – Number of different words, TTR – Type Token Ratio, TL – Time Length, WPM – Words Per Minute, BUP – Between-utterance Pauses, WUP – Within-utterance Pauses, MZE – Mazes, OW – Omitted words, OBM – Omitted Bound Morphemes, WE – Word Errors.

Table 16. Means (SDs) of students' self-ratings on a five-point scale discussion interest.

Items	CR (N=206)	CONTROL (N=224)
Motivation		
I like CR/classroom discussions a lot.	4.24 (.59)	3.85(.59)
I am very excited about participating in CR/classroom discussions.	4.08(.60)	3.01(.53)
Engagement		
In CR/classroom discussions, I usually talked and shared my ideas a lot.	4.17(.71)	3.03(.54)
In CR/classroom discussions, I usually listened carefully to what others say.	4.15(.62)	2.91(.77)
Overall, in CR/classroom discussions, I did (1 – Very poor, 5 – Very well).	4.00(.77)	3.02(.63)
Perceived Benefits		
CR/classroom discussions help me **think** better.	4.61(.49)	3.28(.63)
CR/classroom discussions help me **speak** English better.	4.27(.60)	2.74(.82)
CR/classroom discussions help me **read** English better.	4.06(.72)	2.85(66)
CR/classroom discussions help me **write** better.	4.27(.70)	3.34(.50)
CR/classroom discussions help me **understand** English better.	4.45(.60)	3.06(.59)

Figure 1. Performance on the Reading Fluency posttest by intervention condition.

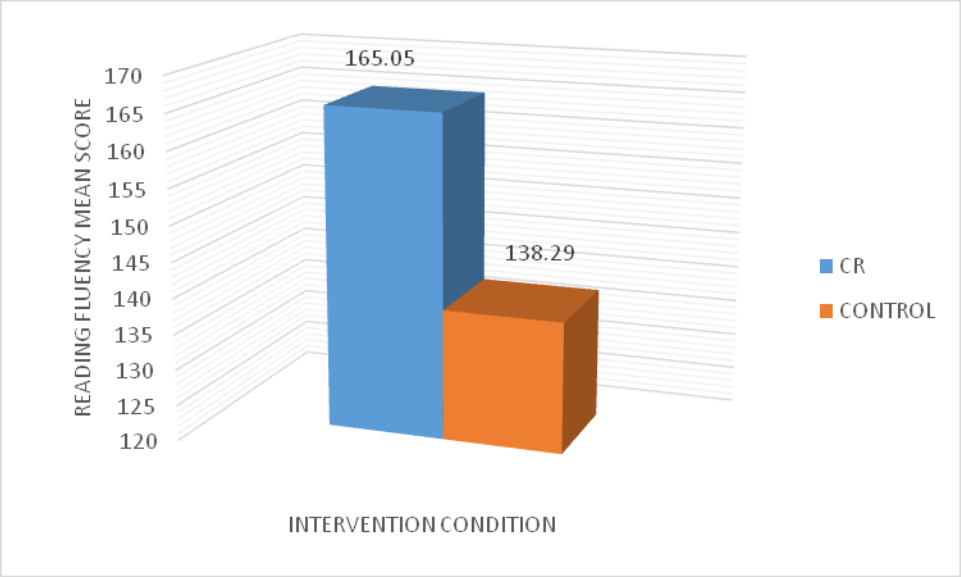


Figure 2. Performance on the Reading Fluency posttest as a function of initial interest in L2 literacy activities and intervention condition.

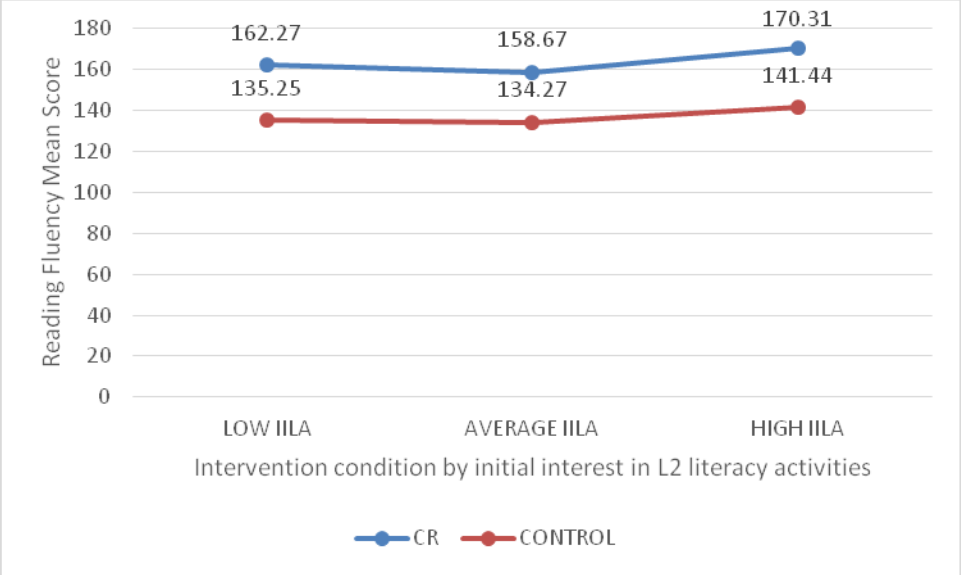


Figure 3. Number of C-units produced as a function of initial reading fluency and intervention condition.

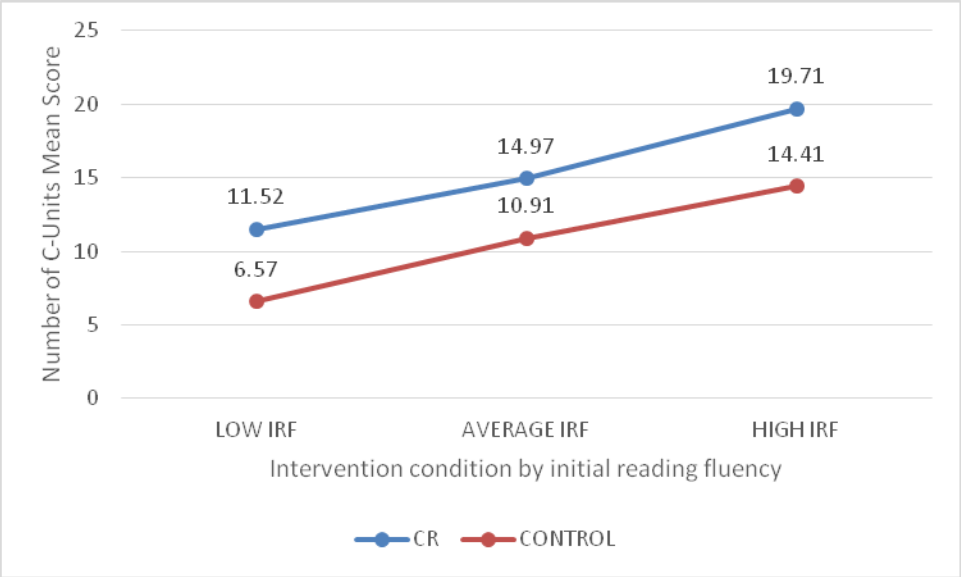


Figure 4. Number of words produced as a function of initial reading fluency and intervention condition.

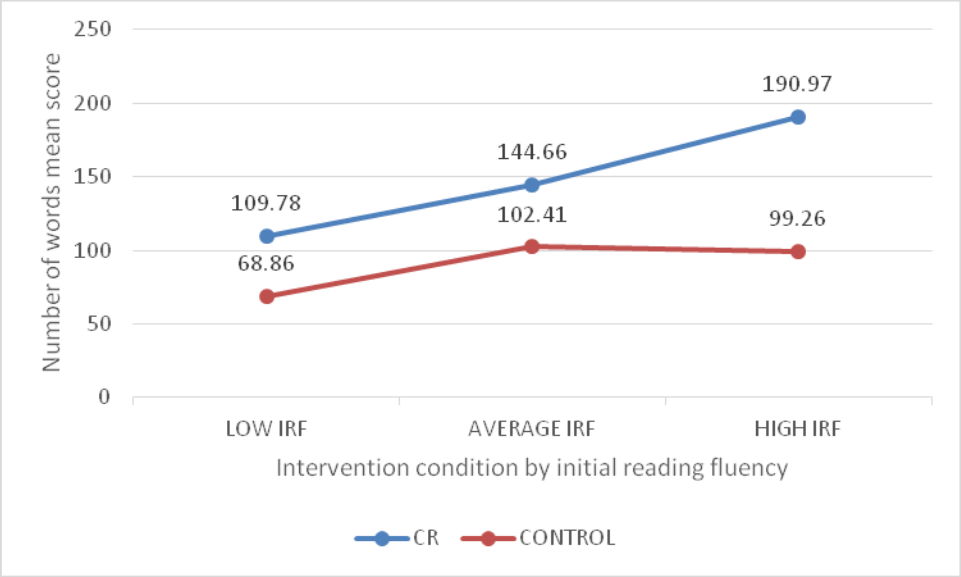


Figure 5. Mean length utterance produced as a function of initial reading fluency and intervention condition.

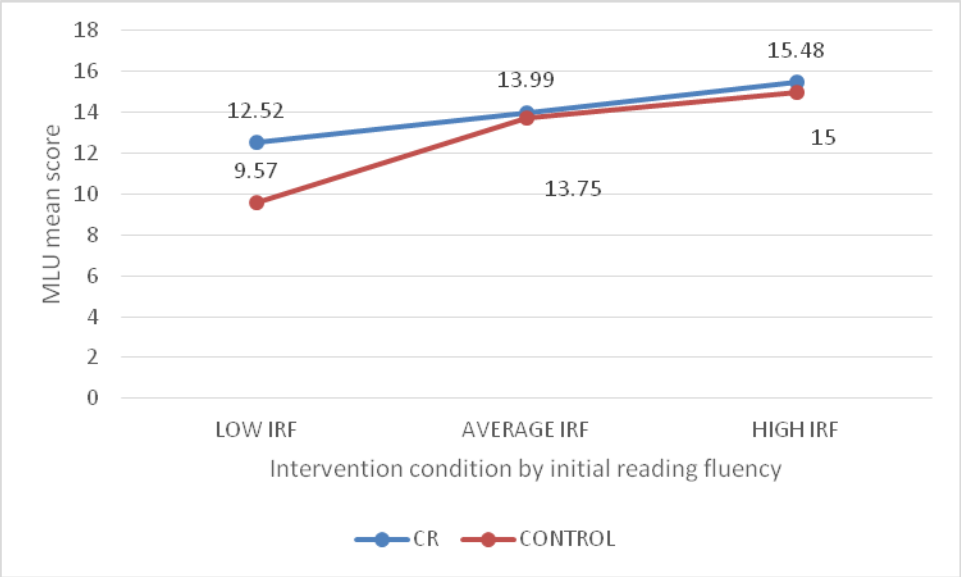


Figure 6. Number of subordination indexes produced as a function of initial reading fluency and intervention condition.

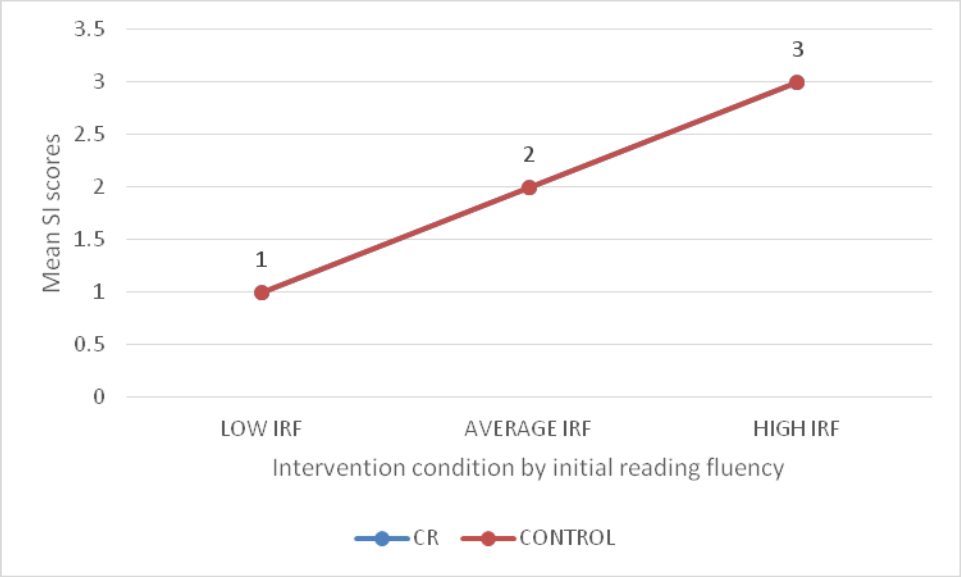


Figure 7. Type token ratio produced as a function of initial reading fluency and intervention condition.

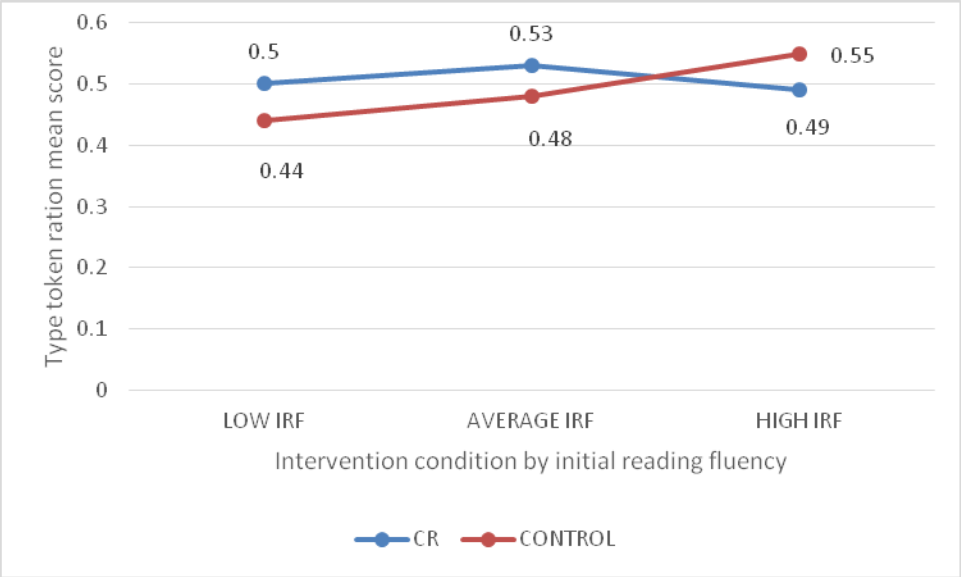


Figure 8. Number of different words produced as a function of initial reading fluency and intervention condition.

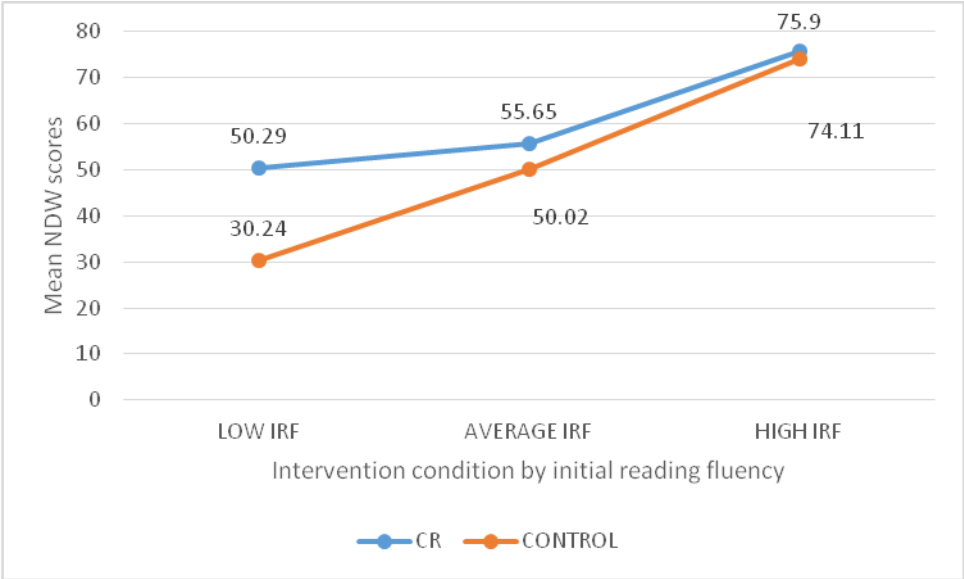


Figure 9. Number of C-units (oral measure) produced as a function of initial reading fluency and intervention condition.

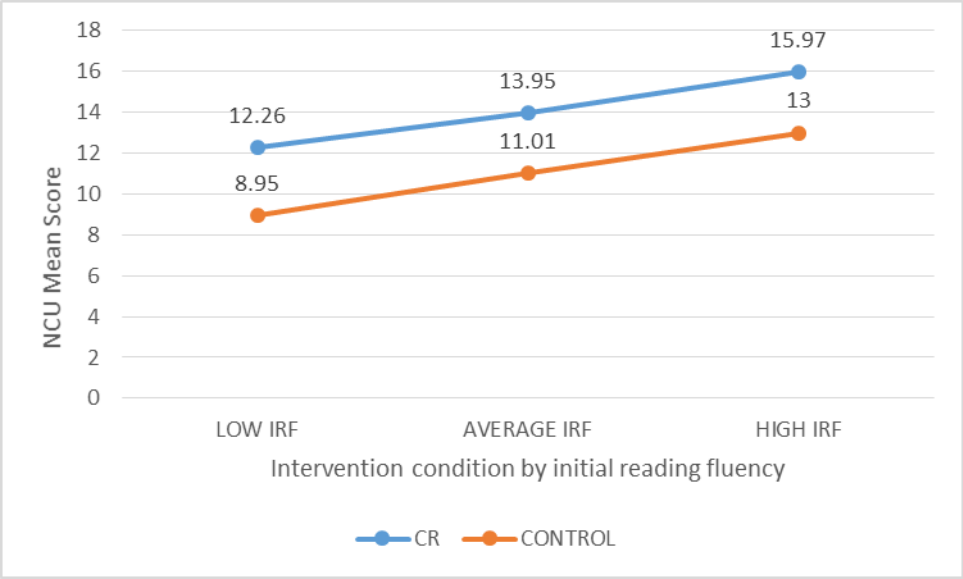


Figure 10. Number of words (oral measure) produced as a function of initial reading fluency and intervention condition.

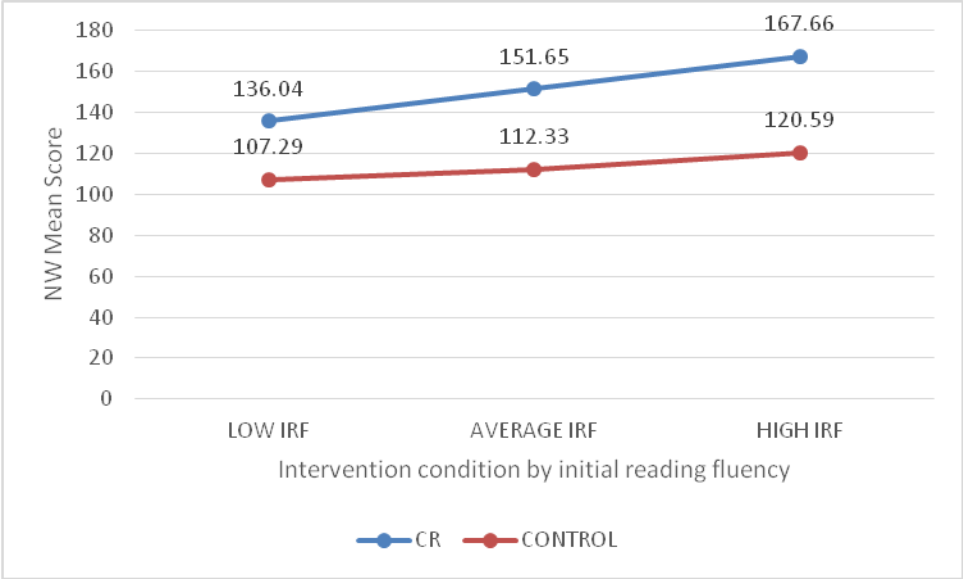


Figure 11. Mean length utterance (oral measure) produced as a function of initial reading fluency and intervention condition.

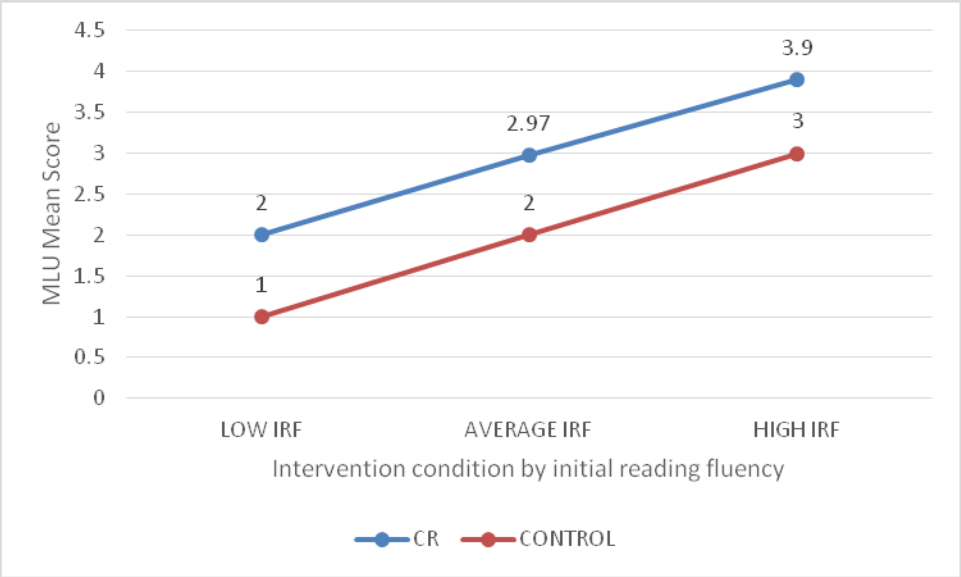


Figure 12. Subordination index (oral measure) produced as a function of initial reading fluency and intervention condition.

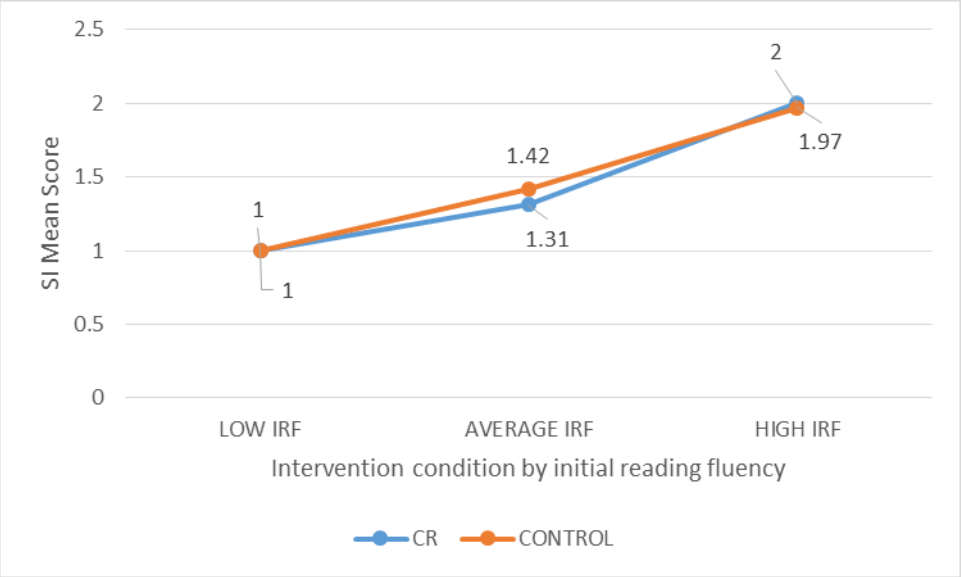


Figure 13. Number of different words (oral measure) produced as a function of initial reading fluency and intervention condition.

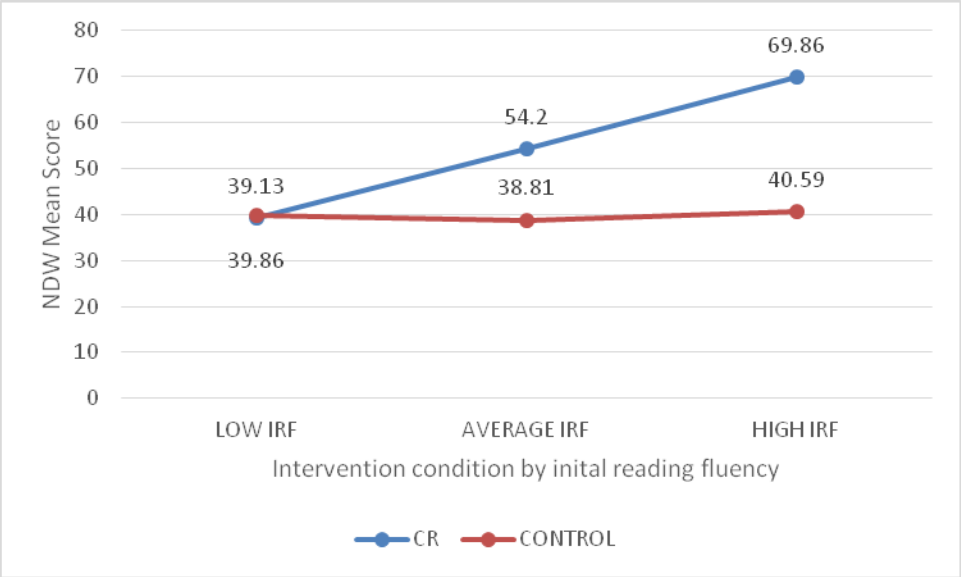


Figure 14. Type token ratio (oral measure) produced as a function of initial reading fluency and intervention condition.

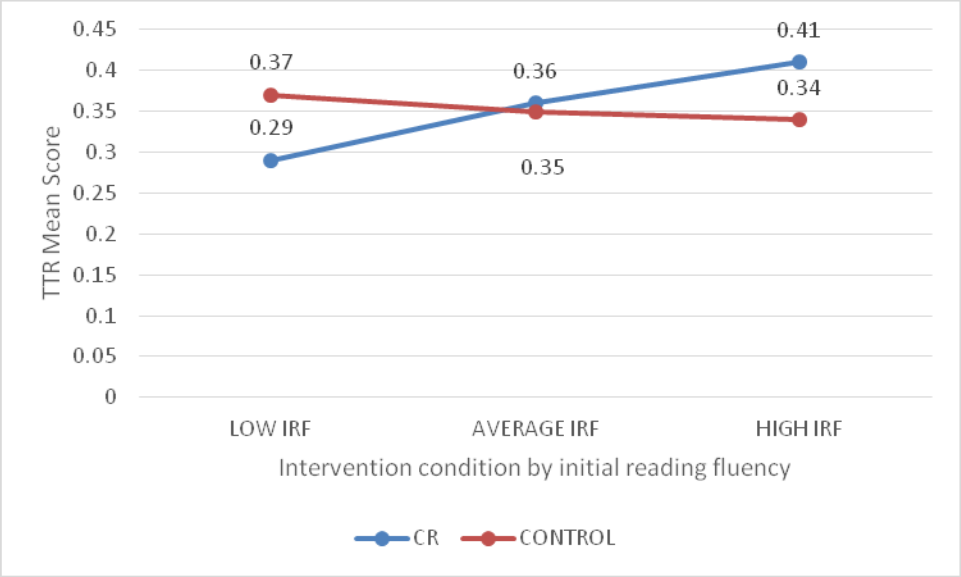


Figure 15. Time Length (oral measure) produced as a function of initial reading fluency and intervention condition.

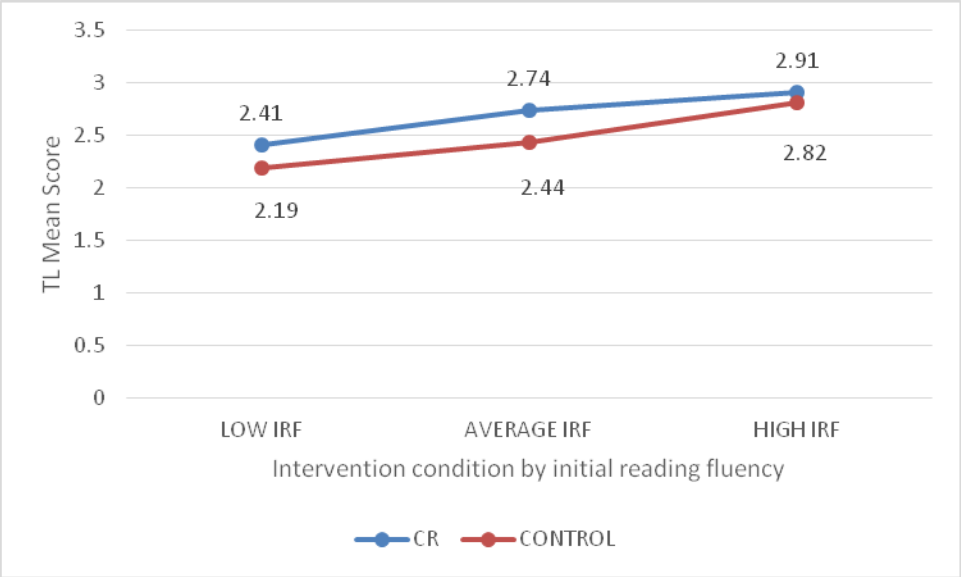


Figure 16. Number of Mazes (oral measure) produced as a function of initial reading fluency and intervention condition.

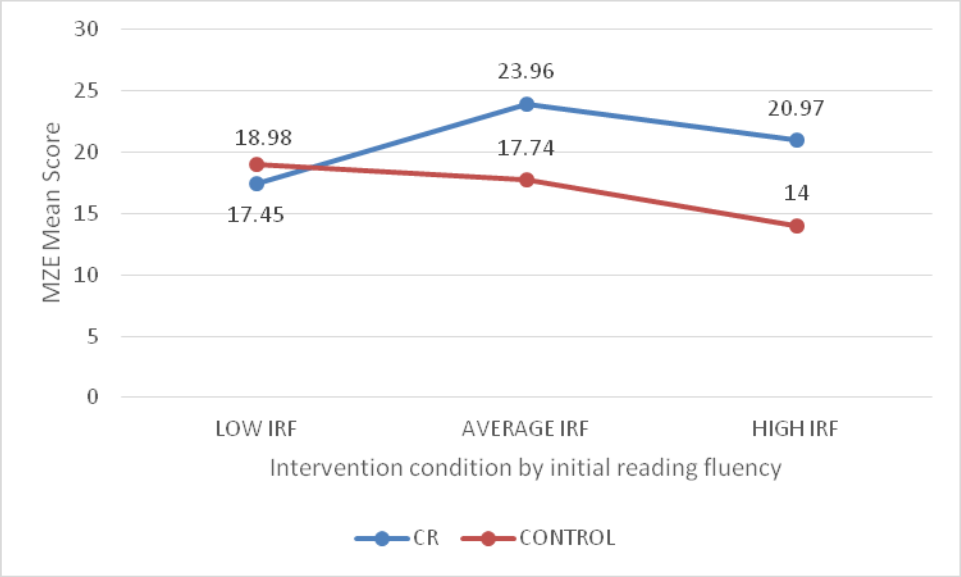


Figure 17. Number of Word Errors (oral measure) produced as a function of initial reading fluency and intervention condition.

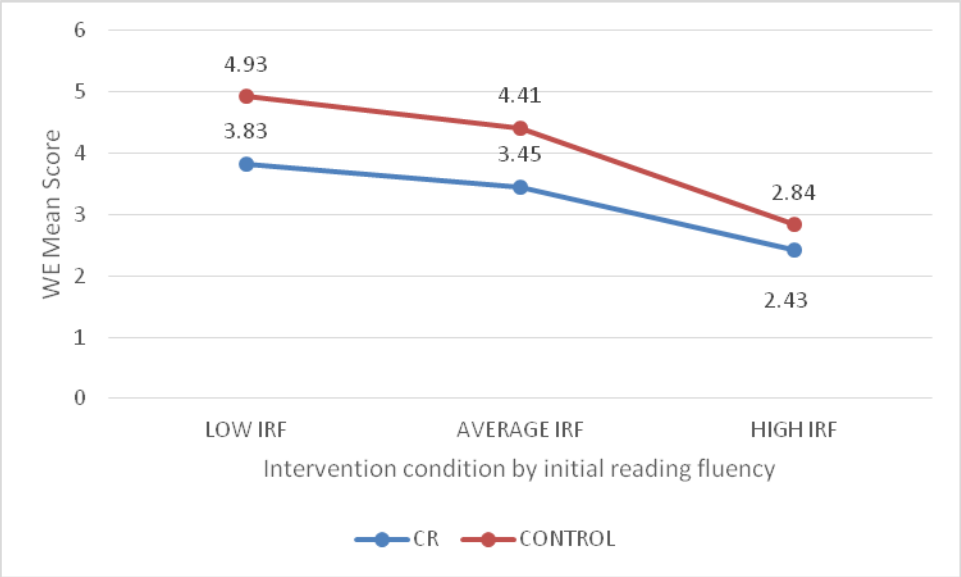


Figure 18. Number of Omitted Words (oral measure) produced as a function of initial reading fluency and intervention condition.

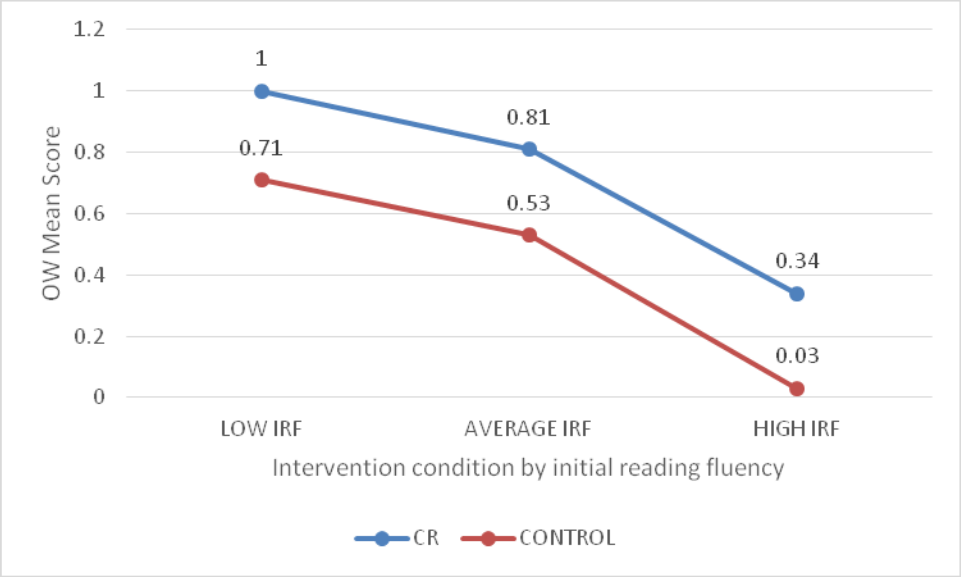
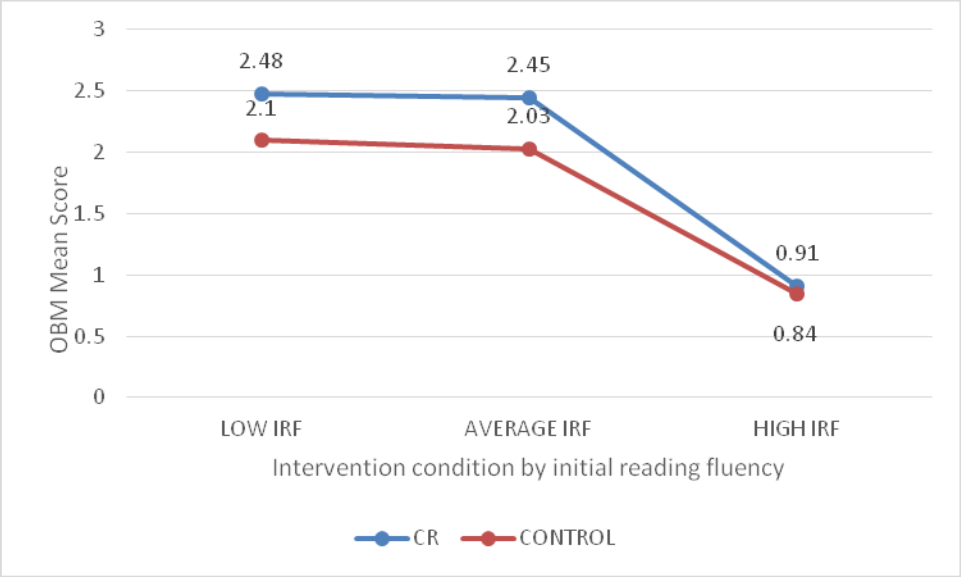


Figure 19. Number of Omitted Bound Morphemes (oral measure) produced as a function of initial reading fluency and intervention condition.



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APPENDIX A

READING FLUENCY TEST

READING FLUENCY TEST PROTOCOL

Time = 10 minutes
Preparing = 5 minutes
Completion = 5 minutes
Materials = Reading fluency test, pencils

1. Researcher makes sure students clear their desks, have erasers and sharpened their pencils.
2. Researcher explains to students what they will be doing and the purpose of the test.
3. Researcher distributes the tests, instruct the students to wait for the directions.
4. Go over test directions and explain to students the practice question.
5. Begin the test and set timer to 5:00 minutes.
6. Researcher collects test.

Instruction:

This is a reading activity to show how fast you can read and understand English sentences. On the next page, you will see 110 sentences. Some of them are true, and some are not. You will have to decide if each sentence is true or false. Write down *T* on the blank line in front of the sentence if you think it is true. Write down *F* on the blank line in front of the sentence if you think it is false.

Let's do two practices.

_____ 1. Humans have two eyes.

_____ 2. Cats have about the same size and color.

Now let's check your answers. For number 1, you should have marked *T* because the sentence is true. For number 2, you should have marked *F* because cats have many different sizes and colors.

Are there any questions before we start? If no, please turn the page and get started!

Thank you very much for your cooperation!

True or False?

_____	_____
Student Name	*Teacher Name*

INSTRUCTIONS:

The next several pages have a list of sentences that are true and false. For each sentence, decide if it is true or false. If it is true, write "T" on the line next to the sentence; if it is false, write "F" on the line.

Let's practice on two examples.

_____ Example 1. Humans have two eyes.

_____ Example 2. All cats have the same color and size.

Is example 1 true or false? You should have marked "T" for true.

Is example 2 true or false? You should have marked "F" for false. Cats come in different sizes and colors.

_____1. Lions like to eat grass.

_____2. An ant is smaller than an elephant.

_____3. A car is much longer than a train.

_____4. Cats can catch mice.

_____5. Bicycles go faster than airplanes.

_____6. The sun gives us light and heat.

_____7. A baseball is bigger than a basketball.

_____8. There are people living on the moon.

_____9. A mushroom is a kind of room.

_____10. It never snows in the North Pole.

_____11. We can find a lot of books in the library.

_____12. Babies can walk as soon as they are born.

_____13. Turtles have long ears.

_____14. The flu is a kind of sickness.

_____15. All the flowers in the world are red.

_____16. A square has four sides.

_____17. A zebra has no stripes.

_____18. A bell makes a ringing sound.

_____19. Books are made of paper.

_____20. A pencil is used for eating food.

_____21. Roses bloom in the winter.

_____22. Fish need water to live.

_____23. We breathe air.

_____24. People usually wear shoes on their hands.

_____25. The milk we drink comes from horses.

_____26. Baby dogs are called bunnies.

_____27. Exercise is good for your health.

_____28. Some people put salt on their food.

_____29. Eggs are hard as rocks.

_____30. We can see many animals in the zoo.

_____31. People use hands to walk and feet to eat.

_____32. Babies wear diapers.

_____33. You see steam when water boils.

_____34. We can tell the time from a chair.

_____35. Tigers are afraid of sheep.

_____36. Ice is frozen water.

_____37. Tea is made in a television.

_____38. We can get wet in the rain.

_____39. Snow is black and white.

_____40. There are five colors in a rainbow.

_____41. There are seven days in a week.

_____42. The sky is blue when it is sunny.

_____43. Many kinds of fish live in the ocean.

_____44. Elephants can fly.

_____45. Eating a lot of sweets is good for your teeth.

_____46. The sun sets in the morning.

_____47. Your mother‘s mother is your grandmother.

_____48. Bears sleep all winter.

_____49. Plants and animals need water to live.

_____50. Telephones are vegetables.

_____51. A raincoat is most useful when it is sunny.

_____52. When you look into the mirror, you see yourself in it.

_____53. At school we are taught to read and write.

_____54. Basketball is a team sport.

_____55. Peaches, plums, and apples are fruits.

_____56. You can buy food from a supermarket.

_____57. We should not be mean to our friends.

_____58. Thursday comes before Wednesday.

_____59. People have four legs.

_____60. We go to primary school at the age of 80.

_____61. You can find camels and cactus in the desert.

_____62. We need to wear more clothes when it is cold.

_____63. A bowler kicks the ball during a bowling match.

_____64. The eyebrows are below the eyelashes.

_____65. Breakfast comes before dinner.

_____66. A violin is a string instrument.

_____67. Your shadow follows you wherever you go.

_____68. A triangle has five sides.

_____69. Hens lay eggs, and monkeys lay eggs, too.

_____70. An air conditioner can make us feel cooler.

_____71. There are twelve months in one year.

_____72. School buses are usually black.

_____73. A pizza is usually in a round shape.

_____74. A scissor is used to hold water.

_____75. Pandas are from China.

_____76. The sun looks small because it is far away.

_____77. The Malaysian flag has stripes.

_____78. A lid goes on top of a box.

_____79. The Moon goes around the Earth.

_____80. A fish can swim in water.

_____81. Kangaroos carry their baby in their pouch.

_____82. An elevator can take you up and down.

_____83. Form 2 students are primary school students.

_____84. Cars can cross the street when the green light is on.

_____85. There are 20 minutes in an hour, and 80 hours in a day.

_____86. The earth is smaller than the moon.

_____87. Most computers are made of wood.

_____88. A computer needs electricity to run.

_____89. You need to peel the skin before eating an orange or banana.

_____90. Rugs are used to cover the floor.

_____91. Silver is worth more than gold.

_____92. Children are older than adults.

_____93. Most people have fifteen fingers on each hand.

_____94. Owls are usually awake during the night.

_____95. Your father‘s brother is your uncle.

_____96. Letters are sent in the mail.

_____97. A five page story is longer than a seven page story.

_____98. Juice is a drink made from fruit.

_____99. Your hair will grow very long if you don‘t cut it for a long time.

_____100. Cars are supposed to stop when they come to a stop sign.

_____101. Tunku Abdul Rahman was the first prime minister of the Malaysia.

_____102. Barack Obama was the first president of Spain.

_____103. Parameswara discovered Thailand.

_____104. In Germany, most people speak Spanish.

_____105. The ancient Egyptians built pyramids.

_____106. A ladder is a kind of musical instrument.

_____107. A piano is a kind of musical instrument.

_____108. A hammer is used to put nails into wood.

_____109. We can see stars in the sky during a sunny day.

_____110. It is colder in the summer than it is in the winter.

APPENDIX B

STUDENT QUESTIONNAIRE

STUDENT QUESTIONNAIRE PROTOCOL

Time = 30 minutes
Preparing = 5 minutes
Completion = 25 minutes
Materials = Student Questionnaire, folders, pencils

1. Researcher makes sure students clear their desks, have erasers and sharpened their pencils.
2. Researcher explains to students what they will be doing and the purpose of the questionnaire.
3. Researcher distributes manila folders and questionnaires, instruct the students to wait for the directions. These folders are used to create private space for each student.
4. Researcher demonstrated how to setup the manila folders on desks.
5. Go over questionnaire directions and show the 4 sections: Your friends, Your talk with others, Your class activities, and Your need for cognition.
6. Read each item for students to keep up the pacing. Make sure students are following the instructions for each section. Also make sure that students are not talking and reading others' responses.
7. Researcher collects questionnaire.

Student Questionnaire

All information that you give me in this questionnaire will be kept <u>confidential.</u>
Please DO NOT talk about your answers with one another.

YOUR NAME: _____

Girl _____ **Boy** _____

Birth date: _____/_____/_____
month date year

YOUR TEACHER: _____

DIRECTIONS: Make sure to read the instructions for each question <u>carefully</u>. If you make a mistake, draw a ~~~ and make a new choice.

A] Your Friends

A1. How much do you like to play with this person at school? Circle the number.

	not at all				a lot
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5

	not at all				a lot
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5
Student Name	1	2	3	4	5

A2. Circle <u>up to five</u> people in the class who are **your best friends**. Do not circle more than five.
Once you've done that, go back to the names that you circled and put a ☺ next to your **VERY best friend**.

Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name

A3. Circle <u>up to five</u> people in the class who you think **are too quiet**. Do not circle more than five.

Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name

A4. Circle <u>up to five</u> people in the class who you think **have the most things to say during class discussions**. Do not circle more than five.

Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name

A5. Circle <u>all</u> the people in the class who you think **usually have good ideas**.

Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name

A6. Circle <u>up to five</u> people in the class who you think **are good leaders**. Do not circle more than five.

Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name
Student Name	Student Name

[B] Your Talk with Others During English Lesson

How true are these statements to you during your English Class? Put an **X** on the number.

		not at all true			very true
B1.	The students in my class care a lot about other kids and try not to hurt their feelings.	①	②	③	④
B2.	The students in my class always listen to other kids when they are talking.	①	②	③	④
B3.	I get called on a lot by my teacher to answer her questions.	①	②	③	④
B4.	I like to answer my teacher's questions.	①	②	③	④
B5.	I feel that the students in my class listen to what I have to say.	①	②	③	④
B6.	It is easy for me to tell other people that I do not agree with them.	①	②	③	④
B7.	I get interrupted often when I talk in class.	①	②	③	④
B8.	I get angry when I get interrupted.	①	②	③	④
B9.	It's pretty easy for me to make friends.	①	②	③	④
B10.	I'm more shy and quiet than other students.	①	②	③	④
B11.	I feel better when I'm with other students than when I am alone.	①	②	③	④
B12.	When I am working or playing with my friends, I like to be the leader.	①	②	③	④

[C] Your English Class Activities

How true are these statements to you? Put an **X** on the number.

	not at all true			very true
C1. I think English discussions in my classroom are very important.	①	②	③	④
C2. I usually read English stories carefully.	①	②	③	④
C3. I like learning about the English language.	①	②	③	④
C4. I usually work hard for the English subject.	①	②	③	④
C5. I think the English language is important and useful to me.	①	②	③	④
C6. I think English discussions in my classroom help me read and think well.	①	②	③	④
C7. I think reading in English is important and useful to me.	①	②	③	④
C8. I usually work hard for the literature in English component.	①	②	③	④
C9. I like writing essays and stories in English.	①	②	③	④
C10. I think English discussions in my classroom are exciting.	①	②	③	④

	not at all true			very true
C11. I like reading about new things.	①	②	③	④
C12. I think the literature in English component is important and useful to me.	①	②	③	④
C13. I usually work hard when my teacher asks me to write something in English.	①	②	③	④
C14. I like English discussions in my classroom a lot.	①	②	③	④
C15. I think writing in English is important and useful to me.	①	②	③	④
C16. I usually talk a lot in the English discussions in my classroom.	①	②	③	④
C17. I like learning literature in English.	①	②	③	④
C18. I usually listen very carefully to others in the English discussions in my classroom.	①	②	③	④

[D] Need for Cognition

How true are these statements to you? Put an **X** on the number.

	not at all *true*			very *true*
D1. I like hard problems	①	②	③	④
D2. I like to be the person who gets to make big decisions	①	②	③	④
D3. Thinking is not my idea of fun.	①	②	③	④
D4. I do not like to work on problems that I know will be difficult to figure out.	①	②	③	④
D5. When I am allowed, I choose work that will not make me think a lot.	①	②	③	④
D6. I like to do problems that take a long time to get the answer.	①	②	③	④
D7. I only think as hard as I have to.	①	②	③	④
D8. I like one big project than many small projects.	①	②	③	④
D9. I like doing things that I can do quickly once I have learned them.	①	②	③	④
D10. I like competitions where you can win if you are a good thinker	①	②	③	④

D11. I like to think of new ways of doing things and solving problems.	①	②	③	④
D12. I like puzzles.	①	②	③	④
D13. If something works, I don't care why it works.	①	②	③	④
D14. I like questions that are easy to answer.	①	②	③	④

Thank you for filling out this questionnaire.
Place it face down on your desk.
It will be collected.

APPENDIX C

TRANSFER TASK 1

TRANSFER TASK 1 – REFLECTIVE ESSAY WRITING

Time = 40
Preparing = 5 Reading = 10 Testing = 20

Materials = "Pinewood Derby" story, answer sheets, pencils

1. Make sure students have sharpened pencils and desks are cleared.
2. Let teachers know that he/she will read the story
3. Explain the writing activity and its purpose.
4. Distribute story and writing papers.

PROTOCOL
Say what is below the heading

Explain the test and its purpose

To Experimental Group:
You have spent several weeks discussing stories that you have read. Now we would like to find out if you can also write your thoughts about another story that you will be reading. Your writing will not be graded. And it will not be shared with your classmates, teacher, parents, or anyone else outside my research team.

To Control Group:
I would like to find out if you can write your thoughts about a story that you will be reading. This activity is not a test for a grade — it is only for me and I will not share your writing with your classmates, teacher, parents, or anyone else outside my research team.

Distribute story and writing papers

The next few pages contain a short story called, "The Pinewood Derby." Your teacher will read it aloud to you. Then, you will be asked to write your thoughts about the story.

Listen **carefully** and follow along while your teacher reads the story.

After reading is done

Now that you have heard the story, I would like for you to write your thoughts on the story. First, write your name and your teacher's name on the cover of your writing papers. Then before you begin writing, make sure you read the directions

on the second page very carefully. You may look back at the story any time you want.

When you are done, raise your hand and we will collect your papers.

You won't be graded on this, but we really want to know what you think. So, please think carefully and do the best you can. When you finish writing, you may take out something to read silently.

You may begin.

Give students 20 minutes to write their essays.

======

The Pinewood Derby

by Brian McNurlen

"**W**hat a sleek-looking car," Jack's dad exclaimed.

Jack had just put the final touches on the model car he would race in the Pinewood Derby. Everyone in his fifth-grade class would be bringing in their balsawood cars for the big race.

"I'm real proud of him," Jack heard Dad tell Mom, "and I didn't have to help him one bit."

He was right. Jack had put the car together all by himself. It was hard to glue the wheels on just right, and he never did get the front ones straight. Some of the glue had dripped on to the back wheel, so when it rolled it sort of hopped. Like someone with a bad limp. He had never used a knife before, so the carving was uneven. Still, he was pleased with himself for following the directions. Mr. Howard was pretty firm about following directions.

Mr. Howard was Jack's teacher. He had given everyone, including Jack, a box that said "Pinewood Derby Car Kit" on it several weeks before.

"I want all of you to work on these cars yourselves," bellowed Mr. Howard.

He had passed out instructions to everyone in the class. Inside the kit were a block of balsawood, four black plastic wheels, glue, paint, and a small carving knife.

"Be very careful with the knife. It's very sharp. Remember to make the car as aerodynamic as you can. 'Aerodynamic' means smooth, so it isn't slowed down by the air. Follow the instructions carefully, but most of all, do the work yourselves."

Jack had worked on his car every night during those three weeks. When his sister asked him if he wanted to see a movie, he said no. When his neighbor asked him to play catch, he said no. He had been a very hard worker.

Finally, it was the day of the race. Jack brought his car to school in a cardboard box. Everyone else in the class had their cars too, and they were trying to decide whose was the fastest.

"I think Lashanda's going to win," said Arron, "her car is screaming!"

Lashanda nodded, "Yeah, it wasn't easy doing it all by myself either. It took a long time and I missed out on my favorite t.v. shows."

"Well, I think Norman's got the best car," said Andrea, "because everyone knows red cars are the fastest."

Jack saw that one kid, Thomas, was standing in the back of the room, tightly holding a box. Thomas noticed Jack was looking at him, and he smiled.

Thomas wasn't liked by many of the students in Mr. Howard's class, probably because he wasn't very nice. Sometimes he would push a kid for no reason, or call them names. He always wore clothes that were dirty and he smelled funny. Jack felt sorry for him. Mom told him to always be kind to people who have less than others.

"Hey, Jack, come look at this," Thomas whispered, motioning to Jack with his finger.

Jack walked over and Thomas set his box down on one of the tables near the back of the room. He gently opened the lid, and inside was the most beautiful model car Jack had ever seen.

"Wow!" shouted Jack, "You made that?"

Thomas looked around.

"No, my brother made it. I mean, I did some of it, like the paint and the stickers an' stuff, but my brother, he made sure the wheels were on straight."

Then he closed the lid of the box.

"Don't tell no one, okay?" Thomas whispered.

Jack hesitated.

"Okay," he said.

Everyone got to race their cars. They could only race two cars at a time on the track, so the winner of one race would go against the winner of the another race, until there was only one winner left. Jack won his first race, but he lost the second one to Kaitlin. Her car was red. But Thomas won every race, and he was named Grand Champion. Mr. Howard handed him a big trophy, and everyone admired it. They all shook Thomas' hand and said what a fast car he had. Thomas was so happy.

Jack felt a little strange. He felt sad that he hadn't won, after all the work he had done on the car. He also felt weird about what Thomas had said. Thomas shouldn't have won, he thought, because he didn't build the car by himself. All the other kids had built theirs on their own. But then he thought about how Thomas had probably never won anything in his life. This might have been the first time Thomas had ever won a prize of any kind. And how could he tell? Nobody likes a tattletale.

Mr. Howard sat down next to Jack.

"You had a really fast car there, Jack," said Mr. Howard, "and I bet you put a lot of work into it."

"Yes," said Jack.

Essay Writing

Student Name: _____

Teacher's Name: _____

Directions

The next few pages contain a short story called, "The Pinewood Derby." Your teacher will read it aloud to you. Then you will be asked to write your thoughts about the story.

Listen **carefully** and follow along while your teacher reads the story.

Should Jack tell on Thomas?

In the next few pages, write whether or not you think Jack should tell on Thomas.
Remember:

Do your best and write as much as you can.

You can go back and re-read the story if you like.

APPENDIX D

TRANSFER TASK 2

TRANSFER TASK 2 - WHALE TRANSFER PROTOCOL

Time = 10 minutes
Materials = "Whales, what will we do?", Audio Recorder, Post Individual Interview Recorder Sheet

7. Give student copy of 'Whales, what will we do?" passage.
8. Explain what student will be doing.
9. Start recording and give prompts when necessary.
10. Stop recording and take notes on the record sheet.

Explain what students will be doing.

Now we are going to read a passage together. It's called, "Whales, what will we do?"

I will read aloud, and I want you to follow along while I read. After we finish reading, I will ask you some questions.

Read the passage clearly.

Begin the interview session:

1. Start recoding
2. Have students say their full names clearly
3. Interview:

Questions

Prompt 1: BQ

1. Do you think we should allow people to hunt whales?
2. Is there anything more you would like to say about that?

Prompt 2: <u>Only if Reasons are omitted</u>

1. Tell me why you think we should [should not] allow people to hunt whales.
2. Is there anything more you would like to say?

Prompt 3: <u>Only if Counter-argument is omitted</u>

1. Could there be people who do not agree with you?
2. What would be their opinion?
3. What would be their reasons?
4. Is there anything more you would like to say?

Prompt 4: <u>Only if Rebuttal is omitted</u>

1. What would you say to people who do not agree with your position?
2. Is there anything more you would like to say?

End:

1. Is there anything more you would like to say about the hunting of whales?
2. Do you have any questions for me?

Stop recording. Record directory & file number (last 3 digits) on record sheet.

Have student call out next student for interview session.

Whales, what will we do?

Hunting whales is called whaling. People have been hunting whales for over a thousand years, but now people have different opinions about whaling.

Some people say that we should hunt whales, because they are eating too much fish. Whales are the largest animals living in the oceans, and they need to eat a huge amount of fish and other sea creatures every day. For example, some whales may eat more than 8,000 pounds of food a day. Several kinds of fish that whales eat are already disappearing, and only a few of them are left. Other people do not think that whales are eating too much fish. These people argue that whales are not the only animals that eat fish. Most of the fish is eaten by people, by other fish, and by seabirds. In fact, some kinds of whales do not eat fish at all. Instead, they eat very small plants and other tiny animals.

Whales also have an effect on the businesses of different people. People who hunt whales argue that whaling provides jobs to them and the people who work in restaurants. Whale hunters can make a lot of money selling whales to restaurants. The meat from one whale can feed as many as 1,000 people for almost two months. In some countries, like Norway, whale meat is a major source of food. Other people say that whaling hurts whale-watching businesses. Each year, millions of people take tours to watch whales in the ocean. These people spend money on boats, travel, hotels, and food. Whale- watching makes a lot of money for people in many countries.

Some people are worried that whaling will affect whale populations. These people say that there are not many whales left in the ocean, because too many whales have been killed by hunters and there is less food for the whales to eat. They say that if we keep hunting whales, whales could disappear forever. However, people who want whaling argue that not all kinds of whales are endangered. Some kinds of whales have always been plenty. Other kinds of whales were few in number in the past, but their numbers are now increasing. Also, in countries like Norway and Japan, whaling is a tradition. Keeping this tradition is very important for people in these countries.

What do you think? Should we allow people to hunt whales?

APPENDIX E

STUDENT MOTIVATION SURVEY

STUDENT MOTIVATION SURVEY PROTOCOL

Time = 15 minutes
Preparing = 5 minutes
Completion = 10 minutes
Materials = Student Discussion Interest survey, pencils

1. Researcher makes sure students clear their desks, have erasers and sharpened their pencils.
2. Researcher explains to students what they will be doing and the purpose of the survey.
3. Researcher distributes the survey, instruct the students to wait for the directions.
4. Go over survey directions and show the 2 sections: 4-point Likert scale, and open-ended questions.
5. Read each item for students to keep up the pacing. Make sure students are following the instructions for each section. Also make sure that students are not talking and reading others' responses.
6. Researcher collects survey.

This version is an abbreviated version of the survey.

What Do You Think About CR/Discussions?

Student Name: _____ **Teacher:** _____

Mark your options with an X.

1. I like CR/classroom discussions

Not at all true ① ② ③ ④ ⑤ *Very true*

2. I am very excited about participating in CR/classroom discussions.

Not at all true ① ② ③ ④ ⑤ *Very true*

3. During CR/classroom discussions, I think it is important to let others know about my opinions and ideas.

Not at all true ① ② ③ ④ ⑤ *Very true*

4. In CR/classroom discussions, I usually talk and share my ideas a lot.

Not at all true ① ② ③ ④ ⑤ *Very true*

5. In CR/classroom discussions, I usually listen carefully to what others say.

Not at all true ① ② ③ ④ ⑤ *Very true*

6. Overall, in CR/class discussions, I do _____.

Not at all well ① ② ③ ④ ⑤ *Very well*

7. Classroom discussions help me **think** better.

Not at all true ① ② ③ ④ *Very true* ⑤

8. Classroom discussions help me **read** better.

Not at all true ① ② ③ ④ *Very true* ⑤

9. Classroom discussions help me **UNDERSTAND** better.

Not at all true ① ② ③ ④ *Very true* ⑤

10. What I like and did not like …

Things that I like about discussions:

_____

_____

_____

Things that I do **NOT** like about class discussions:

_____

_____

_____

THANK YOU!

APPENDIX F

SUMMARY OF SALT TRANSCRIPTION CONVENTIONS

1. **Transcript Format**. Each entry begins with one of the following symbols. If an entry is longer than one line, continue it on the next line.

$ Identifies the speakers in the transcript; generally the first line of the transcript. Example: $ Child, Examiner

C Child/Client utterance. The actual character used depends on the $ speaker line.

E Examiner utterance. The actual character used depends on the $ speaker line.

+ Typically used for identifying information such as name, age, and context. Example of current age: + CA: 5; 7

- Time marker. Example of two-minute marker: - 2:00

: Pause between utterances of different speakers. Example of five-second pause: : :05

; Pause between utterances of same speaker. Example of three-second pause: ; :03

= Comment line. This information is not analyzed in any way, but is used for transcriber comments.

2. **End of Utterance Punctuation**. Every utterance must end with one of these six punctuation symbols.

. Statement, comment. Do not use a period for abbreviations.

! Surprise, exclamation.

? Question.

~ Intonation prompt. Example: E And then you have to~

^ Interrupted utterance. The speaker is interrupted and does not complete his/her thought/utterance.

> Abandoned utterance. The speaker does not complete his/her thought/utterance but has not been interrupted.

3. { } **Comments within an utterance**. Example: C Lookit {C points to box}.

Nonverbal utterances of communicative intent are placed in braces. Example: C {nods}.

4. **Unintelligible Segments**. X is used to mark unintelligible sections of an utterance. Use X for an unintelligible word, XX for an unintelligible segment of unspecified length, and XXX for an unintelligible utterance.

   Example 1: C He XX today. Example 2: C XXX.

5. **Bound Morphemes**. Words which contain a slash "/" indicate that the word is contracted, conjugated, inflected, or pluralized in a regular manner. The root word is entered in its conventional spelling followed by a slash "/" and then the bound morpheme.

   English and Spanish

   /S Plural. Words that end in "s" but represent one entity are not slashed.

   Examples: kitten/s, baby/s, pants, rana/s, feliz/s, flor/s

   English only

   /Z Possessive inflection. Examples: dad/z, Mary/z. Do not mark possessive pronouns, e.g., his, hers, ours, yours.

   /S/Z Plural and Possessive. Example: baby/s/z

   /ED Past tense. Predicate adjectives are not slashed. Examples: love/ed, die/ed, was tired, is bored

   /3S 3rd Person Singular verb form. Irregular forms are not slashed. Examples: go/3s, tell/3s, does

   /ING Verb inflection. The gerund use of the verb form is not slashed. Examples: go/ing, run/ing, went swimming

   /N'T, /'T Negative contractions. Irregular forms are not slashed. Examples: can/'t, does/n't, won't

   /'LL, /'M, /'D, /'RE, /'S, /'VE Contractible verb forms. Examples: I/'ll, I/'m, I/'d, we/'re, he/'s, we/'ve

6. **Bound Pronominal Clitics (Spanish).** Pronominal clitics may be either bound or unbound. When bound, they are preceded by a plus sign. Examples: gritándo+le, déja+lo, dá+me+lo

7. **Mazes.** Filled pauses, false starts, repetitions, reformulations, and interjections.

   ( ) Surrounds the words/part-words that fall into these categories. Example: C And (then um) then (h*) he left.

8. **Omissions.** Partial words, omitted words, omitted bound morphemes, and omitted pronominal clitics are denoted by an asterisk (*).

   * Following one or more letters this indicates that a word was started but left unfinished. Example: C I (w* w*) want it.

   * Preceding a word indicates that an obligatory word was omitted. Example: C Give it *to me.

   /* Following a slash the * is then followed by the bound morpheme which was omitted, indicating the omission of an obligatory bound morpheme. Example: C The car go/*3s fast.

   +* Following a plus sign the * is then followed by the Spanish clitic which was omitted, indicating the omission of an obligatory pronominal clitic. Example: C Él está gritándo+*le a la rana.

9. **Overlapping Speech**. When both speakers are speaking at the same time, the words and silences that occur at the same time are surrounded by angle brackets < >.

   Example 1: C I want you to do it < > for me. Example 2: C Can I have that <one>?

   E <Ok>. E <Uhhuh>.

10. **Linked words**. The underscore "_" is used to link multiple words so they are treated as a single word. Examples include titles of movies and books, compound words, proper names, and words or phrases repeated multiple times.

    *This is to make sure that it would not add up to the total word count since it is referring to a single object/subject.

11. Root identification. The vertical bar "|" is used to identify the root word.

English uses:

The root words of irregular verb forms such as "went" or "flew" are not identified.

Linked words repeated for emphasis. Example: C The boy ran very very_very|very fast.

Non-words used in error. Example: C He goed|go[EO:went] by hisself|himself[EW:himself].

Shortened words. Example:C He was sad cuz|because they left.

Spanish uses:

Inflected word forms. Example: C Había|haber una vez un niño que tenía|tener una rana.

Diminutives. Example: C El perrito|perro tumbó|tumbar las abeja/s.

Linked words repeated for emphasis. Example: C Dijeron rana rana_rana|rana dónde estás.

Non-words used in error.

12. **Sound Effects and Idiosyncratic Forms %.** The percent sign is used to identify sound effects which are essential to the meaning or structure of the utterance. Non-essential sound effects are entered as comments. Strings of the same sound are linked together.

Example 1: C The dog went %woof_woof.

Example 2: C The dog barked {woof woof}.

The percent sign is also used to identify idiosyncratic forms: non adult-like production of very young children which are consistent in reference to an object, person, or situation.

Example 1: C See %vroom {car}.

Example 2: C My %coopa {cookie}.

13. **Spelling Conventions.**

- Filled pause words:
  AH, EH, ER, HM, UH, UM, and any word with the code [FP]
- Yes words:
  OK, AHA, MHM, UHHUH (English & Spanish)
  YEAH, YEP, YES (English only)
  SÍ (Spanish only)
- No words:
  NO, AHAH, MHMH, UHUH (English & Spanish)

NAH, NOPE (English only)

- Numbers (examples):
  21 or TWENTYONE, 17 or DIECISIETE
- Reflexive vs Non-reflexive pronouns (Spanish only)
  The following pronouns can be used both reflexively and non-reflexively:

  ME, TE, SE, OS, NOS.

  Attach the code [X] when used reflexively.

  Examples:

  C El niño se[X] fue con el perro.

  C El perro me ayudó a conseguir la rana.

- Concatenatives:
  GONNA, GOTTA, HAFTA, LIKETA, OUGHTA,
  SPOSTA, TRYNTA, WANNA, WHATCHA

- Other English spellings:
  AIN'T HMM NOONE OURS

  ALOT HUH NOPE OH, OOH

  DON'T LET'S OOP, OOPS, OOPSY UHOH

14. [ ] Codes. Codes are used to mark words or utterances. Codes are placed in brackets [ ] and cannot contain blank spaces. Codes used to mark words are inserted at the end of a word with no intervening spaces between the code and the word.

- Codes used to mark errors in the reference database samples:
  [EO:__] marks overgeneralization errors — C He falled|fall[EO:fell].

  [EW:__] marks other word-level errors — C He were[EW:was] look/ing.

  [EU] marks utterance-level errors — C And they came to stop/ed [EU].

- *Bilingual databases only*
  [EW] marks extraneous words — C And then the boy is a[EW] sleep/ing.

- Other codes used in the reference database samples:
  [FP] marks non-standard filled pause words — C The dog (um like[FP]) fell down.

  [SI-0], [SI-1], etc. used for subordination index forgot coding — C He came back because he something [SI-2].

- *Bilingual databases only*
  [CS] marks code-switched words

Example: C The dog fell from la[CS] ventana[CS].

[F] marks fragments due to utterance segmentation using modified communication units.

Example: C The gopher look/ed out of the hole. C and bit the boy [F].

[I] marks imitations of vocabulary provided by the examiner

Example:

C And then the :05 <> owl[I] scare/ed him.

E <Owl>.

[WO] marks utterances with non-standard word order

Example: C And then fell down the dog and the boy [WO].

[X] marks Spanish reflexive pronouns C El niño se[X] fue con el perro.

APPENDIX G

IRB EXEMPTION LETTER

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research

Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

August 26, 2013

Richard Anderson
Educational Psychology
158a CRC
51 Gerty Dr
M/C 670

RE: *Promoting Communicative Competence and Cognitive Engagement of English Language Learners through Reasoned Collaborative Argumentation*
IRB Protocol Number: 13699

EXPIRATION DATE: August 25, 2016

Dear Dr. Anderson:

Thank you for submitting the completed IRB application form for your project entitled *Promoting Communicative Competence and Cognitive Engagement of English Language Learners through Reasoned Collaborative Argumentation*. Your project was assigned Institutional Review Board (IRB) Protocol Number 13699 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45CFR46.101(b)(1).

This determination of exemption only applies to the research study as submitted. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Dustin L. Yocum

Dustin L. Yocum, Human Subjects Research Exempt Specialist, Institutional Review Board

c: Aini Marina Ma'rof

telephone (217) 333-2670 • *fax* (217) 333-0405 • *email* IRB@illinois.edu

APPENDIX H

IRB TITLE MODIFICATION LETTER

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research
Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

June 23, 2014

Richard Anderson
Educational Psychology
158 CRC
51 Gerty Drive
Champaign, IL 61820
M/C: 670

RE: *THINK, TALK, READ AND WRITE BETTER ENGLISH: IMPROVING L2 LITERACY SKILLS OF MALAYSIAN SCHOOLCHILDREN THROUGH COLLABORATIVE REASONING*
IRB Protocol Number: 13699

EXPIRATION DATE: 08/25/2016

Dear Dr. Anderson:

Thank you very much for forwarding the modifications to your project entitled *THINK, TALK, READ AND WRITE BETTER ENGLISH: IMPROVING L2 LITERACY SKILLS OF MALAYSIAN SCHOOLCHILDREN THROUGH COLLABORATIVE REASONING*. I will officially note for the record that these minor modifications to the original project, as noted in your correspondence received via email 06/20/2014, changing the title from *"Promoting Communicative Competence and Cognitive Engagement of English Language Learners through Reasoned Collaborative Argumentation"* to *"THINK, TALK, READ AND WRITE BETTER ENGLISH: IMPROVING L2 LITERACY SKILLS OF MALAYSIAN SCHOOLCHILDREN THROUGH COLLABORATIVE REASONING"*, has been approved. It has been determined that the research activities described in this application still meet the criteria for exemption at 45CFR46.101(b)(1).

This determination of exemption only applies to the research study as submitted. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your commitment to university policies and regulations regarding human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me, the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Rebecca Van Tine

Rebecca Van Tine, MS
Assistant Human Subjects Research Specialist, Institutional Review Board

c: Aini Marina Ma'rof

APPENDIX I

RESEARCH APPROVAL LETTER

UNIT PERANCANG EKONOMI
Economic Planning Unit
JABATAN PERDANA MENTERI
Prime Minister's Department
BLOK B5 & B6
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62502 PUTRAJAYA
MALAYSIA

Telefon : 603-8888 3333
Telefax : 603-888

Ruj. Tuan:
Your Ref.:
Ruj. Kami: UPE: 40/200/19/2892
Our Ref.:

Tarikh: 4 June 2012
Date:

AINI MARINA BINTI MA'ROF
2215, S. 1ST ST.,
APT 303, 61820-7431,
CHAMPAIGN, ILLINOIS,
USA
Email: marof1@illinois.edu

APPLICATION TO CONDUCT RESEARCH IN MALAYSIA

With reference to your application, I am pleased to inform you that your application to conduct research in Malaysia has been *approved* by the **Research Promotion and Co-Ordination Committee, Economic Planning Unit, Prime Minister's Department.** The details of the approval are as follows:

Researcher's name	:	**AINI MARINA BINTI MA'ROF**
Passport No. / I. C No:		**85052-01-45504**
Nationality	:	**MALAYSIAN**
Title of Research	:	**"COLLABORATIVE REASONING: EXPANDING WAYS FOR MALAYSIAN STUDENTS TO TALK AND THINK IN ENGLISH"**

Period of Research Approved: **3 MONTHS**

2. Please collect your Research Pass in person from the Economic Planning Unit, Prime Minister's Department, Parcel B, Level 4 Block B5, Federal Government Administrative Centre, 62502 Putrajaya and bring along two (2) passport size photographs. You are also required to comply with the rules and regulations stipulated from time to time by the agencies with which you have dealings in the conduct of your research.

3. I would like to draw your attention to the undertaking signed by you that you will submit without cost to the Economic Planning Unit the following documents:

a) A brief summary of your research findings on completion of your research and before you leave Malaysia; and

b) Three (3) copies of your final dissertation/publication.

4. Lastly, please submit a copy of your preliminary and final report directly to the State Government where you carried out your research. Thank you.

Yours sincerely,

(**MUNIRAH ABD. MANAN**)
For Director General,
Economic Planning Unit.
E-mail: munirah@epu.gov.my
Tel: 88725281
Fax: 88883961

ATTENTION

This letter is only to inform you the status of your application and **cannot be used as a research pass**.

Cc:

Ketua Setiausaha
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
Kementerian Pelajaran Malaysia
Aras 1-4, Blok E-8
Kompleks Kerajaan Parcel E
Pusat Pentadbiran Kerajaan Persekutuan
62604 Putrajaya.